# ROM

*Fall 2011* **$5.95** CAN

Magazine *of the* Royal Ontario Museum

**THE ANCIENT MAYA:** Is time on their side? History vs. Hollywood hype / *David Hockney's Fresh Flowers*: Cultivating the virtual garden / **SAVING ONTARIO'S TURTLES:** Three ROM projects
*Plus:* JAMES CHATTO looks (askance) at gorging on bats and **MARK KINGWELL** on apocalypse

volume 44:number 2
2011 fall

*Display until December 15, 2011*

03
7 72006 86280 6

CHARLIE RUSSELL

"Blackfoot War Party" 1902

8" x 15" | watercolour

*Celebrating 35 Years of Collecting Quality*

"The Art of Collecting Quality"

2115 4 Street S.W.
Calgary, Alberta T2S 1W8

403.245.2064

www.mastersgalleryltd.com

Masters Gallery ltd.

*Fall 2011*
*Volume 44, Number 2*

p. 34

Twilight Muse: ROM Press author Denise Dias and illustrator Tara Winterhalt in the ROM's Bat Cave.

# Contents

## Features

18 **THE 11TH HOUR?**
Exploring history vs. Hollywood hype, *Maya: Secrets of Their Ancient World* comes to the ROM
BY SHEEZA SARFRAZ

24 **THE MAKING OF FRESH FLOWERS**
As *David Hockney's Fresh Flowers: Drawings on iPhones and iPads* prepares for its North American debut at the ROM, exhibition curator Charlie Scheips takes us behind the scenes to show how this project came to be
BY CHARLIE SCHEIPS

26 **TURNING TURTLES**
How researchers are helping a "ghost" population of Ontario's snapping turtles to survive
BY CHRISTINA DAVY

Maya p. 18

## Front

2 Contributors
3 First Word
4 What's On at the ROM
8 Journal
11 Opinion
12 Cuisine & Culture
13 Ask an Expert
14 Field Notes
16 Curator Profile
17 Map of Explorations

## Back

33 Shopping
34 Bookshelf
36 Backyard Biodiversity
48 Exhibit A

## For Our Members

39 Members' Message
40 News & Programs
42 ROMtravel
44 Events
45 Governors' Office Message
46 Support
47 Sponsorship

### ON THE COVER

**World cultures** (main image): Maya pyramid in Chichén Itzá, Mexico
**Photo:** Dmitry Rukhlenko

**Natural history:** Freshwater angelfish *Pterophyllum altum*
**Photo:** Getty Images, Dorling Kindersley; photo by Dave King

### INFORMATION

Royal Ontario Museum
100 Queen's Park
Toronto, ON M5S 2C6
Switchboard: 416.586.8000
Website: rom.on.ca
E-mail: info@rom.on.ca

**HOURS**
Saturday through Thursday: 10 am to 5:30 pm; Friday: 10 am to 8:30 pm; closed Christmas Day.

**ROM LIBRARY**
Public hours: Monday, Wednesday, and Friday: 10 am to 4:30 pm; Tuesday: 10 am to 5:30 pm

**ADMISSION PRICES**
ROM Members: FREE*
Adults: $24
Students and seniors with ID: $21
Children (4 to 14 years): $16
Infants 3 and under: FREE

Half Price Friday Nights, presented by SunLife Financial, from 4:30 pm to 8:30 pm:
Adults $12
Students and seniors with ID $10.50
Children $8

Admission, except for ticketed exhibitions, is free after 3:30 pm Wednesdays.

Admission is free on Tuesdays for post-secondary Canadian students with ID.

Museum and Arts Pass Program participant.

**All adult Members must present a valid membership card and photo ID. Membership cards are not transferable except for RPC Members.*

Photos: Denise Dias and Tara Winterhalt. Wanda Dobrowlanski Lid of a jar, Late Classic period (600–900) CE Museo de Sitio Toniná/CONACULTA-INAH

**Christina Davy**
PHD CANDIDATE
UNIVERSITY OF TORONTO

Christina Davy's ("Turning Turtles") doctoral research focuses on the conservation genetics of Ontario turtles and on the effectiveness of applied conservation techniques in recovering threatened turtle populations. She has also done conservation work in Greece, Costa Rica, Belize, and Mauritius. In 2007, Davy was selected by Wildlife Preservation Trust as Canada's New Noah and is applying the tools learned during that program to her work in Ontario.

**Can we save the world's turtles?** I'd like to say YES, but given the huge and varied threats they are facing, I'm not certain. It will take many people working together to succeed. Most importantly, it will take the willingness of people around the world to change their behaviours—including choosing not to take wild turtles home and not to buy and eat at-risk turtles. We won't find out if it's possible unless we try—and I'm certain that turtles are worth saving!

**Hernán López-Fernández**
ASSOCIATE CURATOR

An associate curator in the ROM's Ichthylology section, Hernán ("Exhibit A") studies the evolutionary biology of South and Central American cichlid fishes. His fascination with fish began at an early age when his father bought him an aquarium. A few years later when the budding scientist discovered cichlids, he decided to dedicate his career to their study. Today, Hernán's work combines field and laboratory research in systematics, biogeography, and evolutionary biology.

**What drew you to study fish in South and Central America?** The freshwaters there are estimated to harbour well over 6,000 species of fishes, more than any other biogeographic region on Earth. And among that great diversity, cichlid fishes stand out for their morphological, ecological, and behavioural diversity. Comparative evolutionary studies of these cichlids could prove to be a powerful tool to understand the origin of the most diverse freshwater fish fauna on the planet.

**Sheeza Sarfraz**
RESEARCHER/WRITER

Sheeza Sarfraz ("The 11th Hour?") is a researcher/writer at Royal Ontario Museum Press and *ROM* magazine. She is a graduate of the University of Toronto, where she majored in economics and English literature. In researching her article, she worked with the exhibition development team for the upcoming blockbuster show *Maya: Secrets of Their Ancient World* and the exhibition's curator, Dr. Justin Jennings.

**What surprised you most about the Maya?** Their architecture. The Classic Maya are famous for their achievements in astronomy and the arts, but perhaps more impressive are the magnificent temples and palaces they created primarily with stone tools and obsidian. They built complex structures without the use of metal tools, pulleys, or "beasts of burden." The absence of draught animals gives a sense of the magnitude of human power that would have been required to engineer these monuments of antiquity.

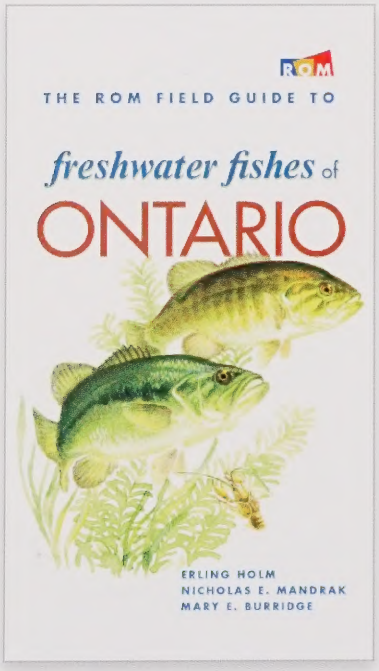
**Charlie Scheips**
*CURATOR OF DAVID HOCKNEY'S FRESH FLOWERS*

Charlie Scheips ("The Making of *Fresh Flowers*") has an enduring friendship with the noted British artist David Hockney that dates back to 1984. In his colourful career, Scheips has organized the Los Angeles Contemporary Art Fair, founded the Condé Nast Archives, curated dozens of exhibitions and events, and written for numerous publications worldwide.

**Has your relationship with David Hockney changed since you became the curator of his digital drawings?** I'm not sure if it has changed so much as grown even more significant. I was first his friend, then his assistant, and then collaborator (I've done other shows with him). David knows he can trust me. I have been with him on his artistic journey for nearly 30 years so I guess I am just one of the inner circle. I used to be his young friend—now I am one of his oldest.

Sheeza Sarfraz, Wanda Dobrowlanski. Charlie Scheips, courtesy New York Social Diary


THE ANGLER'S EDGE




Available at the
ROM Museum Store,
bookstores, and online.

# A Letter from our Director and CEO

## Connecting with the Past

I grew up in a Roman landscape. The Romans dug for salt in my English home county of Cheshire, and the major city, Chester, was once the Roman fort of *Deva*. Local maps would show major thoroughfares annotated with the words *Roman Road,* and every time we went shopping we passed the foundations of an amphitheatre with pale stones surrounded by neatly clipped lawns.

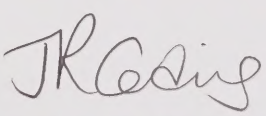
But I have a confession to make. Immersed though I was, I nevertheless struggled to find the archaeology interesting in local museums. I found the twisted metal pieces and rows of pottery shards dull, and the illustrations of soldiers marching along the roads seemed a bit irrelevant to me. It wasn't until much later, when I visited a museum in Colchester, once the capital of Roman Britain, *Camulodunum*, that I found the hook, my way in to archaeology.

The exhibit looked a simple one: a tea tray laid out for lunch, with various pieces of crockery, food, and cutlery. Next to it was a second tray, with an identical array of material, but this tray was dirty and bent, the plates broken, with pieces missing, the cutlery rusty, and the food replaced with a few brown smears. The label for this second tray explained that this was how the first tray might look if it were to be found by archaeologists in thousands of years' time. A second label asked what this tray would tell archaeologists about how we lived.

This was my turning point, the exhibit that enabled me to make a leap of imagination to see the mute pots nearby as fragments of how people lived their lives long ago, and archaeologists as the detectives who pieced together the story of those lives from fragmentary artifacts. And more than that, I could start to place myself in history, find a connection to those who lived long ago, and feel rather awed that one day long after I am gone others might try to piece together the story of our time from the scattered relics they find.

Each of us might make the leap in a different way, but for many it begins with a memorable visit to a museum. For some, experiencing the objects themselves sets off flights of fancy; for others it is the interpretation that brings the material to life. In our new suite of galleries—the Eaton Gallery of Rome, including the Bratty Exhibit of Etruria; the Joey and Toby Tanenbaum Gallery of Rome and the Near East; the Joey and Toby Tanenbaum Gallery of Byzantium; and the Galleries of Africa: Nubia—I once again feel a sense of connection. Thanks to the masterly investigative work of our curators, I picture these people of long ago buying food, watching sports, decorating their houses, and raising families, and also imagine that one day someone in a future museum might do that for us.

Imagine archaeologists coming to this place many years in the future. What might they learn about how we lived?



**JANET CARDING**
DIRECTOR AND CEO

Photo: George Whiteside

ROM Royal Ontario Museum

**ROM**
Magazine of the Royal Ontario Museum

Publisher
**Julian Siggers**

Executive Editor
**Glen Ellis**

Managing Editor
**Lee-Anne Jack**

Design and Production
**Hambly & Woolley Inc.**

Consulting Editor
**Anna Kohn**

Copy Editor
**Andrea Gallagher Ellis**

Photography
**Brian Boyle** (unless otherwise indicated)

Contributing Editors
**Mary Burridge**
**Denise Dias**
**Mark Engstrom**
**Peter Kaellgren**
**Amy Lathrop**
**Victoria Littler**
**Dave Rudkin**
**Kevin Seymour**
**Janet Waddington**

**Editorial Offices**
*ROM*, magazine of the Royal Ontario Museum
100 Queen's Park
Toronto, ON M5S 2C6
416.586.5585
glene@rom.on.ca
www.rom.on.ca

**Advertising Sales**
*ROM* magazine
100 Queen's Park
Toronto, ON M5S 2C6
416.586.5588
rommagazine@rom.on.ca
www.rom.on.ca/media/pdf/mediakit.pdf

Published four times per year by the Royal Ontario Museum through the generosity of the Louise Hawley Stone Charitable Trust.

© The Royal Ontario Museum, 2011.

Printed and bound in Canada. Indexed in the Canadian Periodical Index and the Canadian Magazine Index, and available on-line in the Canadian Business & Current Affairs Database
ISSN 1911-947X and through Thomson Gale.

Canadian Publications Agreement #40068986.

Return undeliverable Canadian addresses to:
Royal Ontario Museum
Membership Department
100 Queen's Park
Toronto, ON M5S 2C6.

**Subscriptions and Single Copy Sales**
Subscription cost (four issues) $20 including HST; outside Canada add $8 for postage and handling; single copies cost $5.95 plus HST.

All circulation and subscription inquiries should be addressed to:
*ROM* magazine
Royal Ontario Museum
100 Queen's Park
Toronto, ON M5S 2C6
416.586.5870
magazine@rom.on.ca

FSC www.fsc.org MIX Paper from responsible sources FSC® C101537

*ROM* magazine is printed on paper from well-managed forests and is chlorine and acid free.

# Exhibitions and gallery openings

Incense burner stand of noble with glyphic description, stone. Palenque, Chiapas, Mexico. Classic period, 250–900 CE.

**In the Spotlight**

November 19, 2011, to April 9, 2012
**Feature Exhibition** Garfield Weston Exhibition Hall, Michael Lee-Chin Crystal, Level B2

## NEW Maya: Secrets of Their Ancient World

Maya civilization flourished in Mesoamerica starting about 3,000 years ago, and reached the zenith of its achievement during the Classic Period (250–900 CE). It was a time when the previously scattered population was living in city-states ruled by local kings. In these urban environments, the Maya perfected a written language to record their beliefs and histories, developed a complex calendar system based on astronomy, built elaborate temples, palaces, and monuments, and produced artworks for decoration and as trade goods.

The exhibition *Maya: Secrets of Their Ancient World* takes visitors on a voyage into the heart of a Maya city and examines the mysteries surrounding this ancient culture—including why so many of the once flourishing kingdoms abruptly collapsed in the 10th century. In collaboration with Mexico's National Institute of Anthropology and History (INAH), the ROM and the Canadian Museum of Civilization (CMC) bring together a collection of nearly 250 artifacts, many never before seen in Canada. After its ROM debut, the exhibition will be displayed at the Canadian Museum of Civilization from May 18 to October 28, 2012.

This exhibition is co-produced by the Royal Ontario Museum (ROM) and the Canadian Museum of Civilization (CMC) in collaboration with the National Institute of Anthropology and History (CONACULTA-INAH).

CANADIAN MUSEUM OF CIVILIZATION / MUSÉE CANADIEN DES CIVILISATIONS Canada Instituto Nacional de Antropología e Historia Consejo Nacional para la Cultura y las Artes

Opens November 11, 2011 **New Exhibition**
Special Exhibitions Gallery, Centre Block, Level 3

## NEW The Kingston Prize: Canada's National Portrait Competition

Each year, Canada's top artists submit their contemporary paintings and drawings of Canadians to vie for the coveted Kingston Prize. This exhibition displays the competition's 30 finalists. Winner of the $20,000 prize, which is presented by the W. Garfield Weston Foundation, will be announced November 10 at the opening gala for the show.

The competition is organized by the Kingston Arts Council, and the exhibition presented in cooperation with the ROM's Institute for Contemporary Culture.

Alberto Ruz Lhuillier Museum. Inventory number 10-458700. ©CONACULTA-INAH

**October 8, 2011, to January 1, 2012** **New Exhibition** Institute for Contemporary Culture, Roloff Beny Gallery, Michael Lee-Chin Crystal, Level 4

## NEW David Hockney's Fresh Flowers: Drawings on iPhones and iPads

The use of flowers to brighten the day goes back at least as far as 2500 BCE, when Egyptians brought cut blooms indoors to place in vases. A new ROM exhibition featuring works by David Hockney brings that time-honoured tradition into the digital age.

A renowned international artist, Hockney always admired the flowers his partner would set out on the breakfast table each morning at their seaside cottage. In 2008, when he discovered that he was able to create striking colour images on his iPhone using only his fingers, Hockney began e-mailing pictures of flowers each morning to friends and family as a way to share this charming start to the day. He has since created hundreds of digital images ranging in subject matter from flowers and self-portraits to landscapes and still lifes.

Featuring more than 400 of these extraordinary drawings, which exist only in the digital realm, *Fresh Flowers* reveals how new technologies are dramatically impacting the working methods of one of the world's great visual artists.

*Project organized by:* Fondation Pierre Bergé Yves Saint Laurent

*Charlie Scheips, Guest Curator*
*Ali Tayar, Exhibition Designer*

**Until January 20, 2012**
**New Exhibition** Temporary Exhibition Space, Hilary and Galen Weston Wing, Level 2

## NEW Who's Drawing the Lines: The Journey of Judith Snow

An internationally recognized author, lecturer, and world leader on Inclusion for people who are labelled disabled, Judith Snow has lived a lifetime of quadriplegia. At 12 years of age she made her first sketch while at a rehab centre. However, her artistic talents were not nurtured until age 55, when Judith found a way to paint. This led to the emancipation of her passionate expression—in art and in life. *Who's Drawing the Lines* celebrates not only Judith's life, legacy, and artwork, but also illustrates her journey towards exploding the traditional stereotypes of disability.

**Until October 2, 2011** **Ongoing Exhibition**
Special Exhibitions Gallery, Centre Block, Level 3

## Bollywood Cinema Showcards: Indian Film Art from the 1950s to the 1980s

Done correctly, advertisements have a way of powerfully associating a mood with a product. Showcards, the colourful collages produced in India to advertise a new movie's release, were particularly adept at invoking the emotional tone of a Bollywood film. But they were more than ads. These original compositions, commissioned from local artists, combine paint and photography in a way that is unique to South Asian visual culture.

The ROM's Institute for Contemporary Culture is offering a rare glimpse at more than 120 vintage advertisements with the exhibition *Bollywood Cinema Showcards: Indian Film Art from the 1950s to the 1980s.*

*Supporting Sponsor:* CIBC

*Promotional Partner:* CINEPLEX

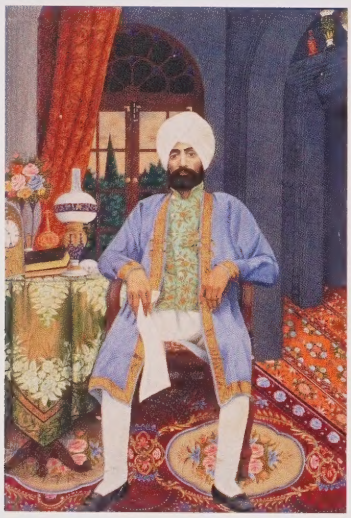
*Exhibit Patron:* Moira and Alfredo Romano

*Government Partner:* Ontario

Jayasarthi Combine presents
Sarat Chandra's
Swami
EASTMANCOLOR
a film by BASU CHATTERJEE
Shabana Azmi · Vikram · Girish Karnad with Shashi Kala
JAYA CHAKRAVARTHY · RAJESH ROSHAN · AMIT KHANNA

Showcard for *Swami*, unknown artist, Mumbai, India, 1977.

David Hockney, "Untitled, 14 June, 2010, No.1" iPad drawing. © David Hockney. *Rita*, courtesy Judith Snow. Showcard, courtesy The Hartwick Collection



Hand-painted photograph of Sri Tulsi Ram, c. 1880, India.

**MEMBERS' SPECIAL**
Exhibition books are available at the ROM Museum Store for $24.99. Members receive a 10% discount.

**Until March 18, 2012** Ongoing Exhibition
Herman Herzog Levy Gallery, part of the Asian Suite of Galleries, Philosophers' Walk Wing, Level 1

## Embellished Reality: Indian Painted Photographs

In India, visual forms have often combined past techniques with present ones in new hybrid varieties. Indian painted photographs exemplify this by combining established painting styles with the technology of photography. Come ponder why photographs needed to be painted, even after the advent of colour photography. *Embellished Reality: Indian Painted Photographs* showcases 75 images from the ROM's permanent collection that have never before been shown in public.

*Exhibit Sponsor:* Manulife Financial

*Government Partner:* Ontario

**Throughout 2012** Ongoing Exhibition
Shreyas and Mina Ajmera Gallery of Africa, the Americas, and Asia Pacific, Michael Lee-Chin Crystal, Level 3

## New Acquisitions Featured in the Ajmera Gallery

Three important collections recently donated to the ROM contain historical and contemporary African objects that visually refer to practices, rituals, and traditions from various countries across the continent: a collection of instruments, puppets, and masks donated to the Museum in 2009 by Esther Amrad Dagan; the Jack and Iris Lieber Collection of Yoruba ritual art; and two contemporary proverbial coffins made by the Ga people of Ghana.

Bird with offertory tray raised on a shaft

**Until January 15, 2012** Ongoing Exhibition
Wirth Gallery of the Middle East, Michael Lee-Chin Crystal, Level 3

## On the High Road: The Archaeology of Godin Tepe, Iran

From 4500 to 500 BCE, people made their home at the site of Godin Tepe in northwestern Iran along the fabled Silk Road. From 1965 to 1973, ROM curator T. Cuyler Young, Jr., and a team from the ROM uncovered these long-lost communities—one of the most remarkable archaeological excavations undertaken by the Museum. Yet Dr. Young's findings had remained unpublished—until this year. This exhibition celebrates publication of the first book about these excavations with a presentation of the artifacts and archaeology from this landmark site.

**Until spring 2012** Ongoing Exhibition
Sigmund Samuel Gallery of Canada, Wilson Canadian Heritage Exhibition Room, Weston Family Wing, Level 1

## Sitting Still: Faces of Childhood

The finest portraits show more than just a person's physical likeness—they also hint at personality or character. *Sitting Still: Faces of Childhood* takes an unsentimental look at children's portraits from the ROM's 19th-century Canadian collection. Looking carefully at the portraits, you'll get a sense of the subtle play between child and artist, or, in the group portraits, of the interaction between parents and children, and sisters and brothers.

The show explores the personal, social, and historical contexts in which these portraits were produced. Some of the portraits have remained for generations within the families of the subjects. Two such images have recently been acquired by the ROM: *Eliza Cory Clench*, believed to be one of Paul Kane's earliest portraits, and *James, Kathleen, and William McLaren* by J. W. L. Forster, unveiled for its first-ever public presentation.

*Eliza Cory Clench*, attributed to Paul Kane, 1835/36. Descended through the family to Janet Shirley, great-granddaughter of Eliza Cory Clench.

**Indefinite Run**

Daphne Cockwell Gallery of Canada: First Peoples, Hilary and Galen Weston Wing, Level 1

## Jane Ash Poitras: New Acquisitions of Contemporary First Nations Art

Sri Tulsi Ram, ROM 2003.39.7. This acquisition was made possible with the generous support of the Louise Hawley Stone Charitable Trust and the ROM Reproductions Acquisitions Fund. *Eliza Cory Clench*, ROM 2011.10.1.1-1.2. Gift of Janet Shirley. Bird with offertory tray, ROM 2009.83.10.

Heidi Sobol, Senior Paintings Conservator, works on a photograph

## SUSAN'S LEGACY

# An adventurer who loved to wander the ROM

Susan Greenberg was a passionate world traveller with an excitement and enthusiasm for arts and culture, including a fascination with ceramics and archaeology. The Royal Ontario Museum (ROM) played an important role throughout her life, and in 1997, she joined us as a dedicated volunteer, helping out in the ROM Reproductions Shop on Saturdays and donating her time and energy during special exhibitions and March Break. Earlier this year, the Susan Joan Greenberg Fund was established to support acquisitions and collections care at the ROM. Her generosity and passion for the ROM live on in her legacy gift, helping to ensure that future generations experience the wonder of natural history and world cultures at the ROM.

**CREATE A LEGACY OF WONDER AND DISCOVERY THROUGH A GIFT IN YOUR WILL. ASK US HOW.**
Contact Scott Forfar at scottf@rom.on.ca or 416.586.8012, or visit **www.rom.on.ca/giftplanning**

# Discoveries, Dispatches, and Discourse

This tiger beetle, a species of *Megacephala*, is one of the specimens from Barbuda. Large mandibles and long legs help this fast-moving ground predator catch a meal.

Tiger beetle, Roger Smith, Department of Biology, University of New Brunswick

## New Acquisition

## Gift from a Small Island

**How Valerie helped the ROM acquire insects from Barbuda**

In the ROM's entomology section, we receive offers of specimens from a variety of sources: amateur collectors, retiring scientists, student collections. Most of the donated specimens are Lepidoptera—butterflies and moths—many of them beautifully prepared and accompanied by detailed information about where and when they were collected. Approximately one-quarter of our Lepidoptera collection was built through donations, and many represent the more exotic localities.

A few months ago, a particularly intriguing note came via e-mail with a donation offer from Dr. Steve Heard, head of the Department of Biology at the University of New Brunswick. He had recently taught a field course in Barbuda—not Bermuda or Barbados—I had to look it up! He and his students had made a small collection of insects there.

"Funny story," he wrote. "We were in Barbuda, which has exactly one village, and we went into 'Valerie's Store' to get a drink. You know what tropical stores tend to be like, and this one was great—random stuff piled everywhere and hanging from the ceiling, everything from corn flakes to school supplies to exotic lingerie. There was a tiny woman of considerable age behind the counter (Valerie), and as soon as we spoke to her she said 'You sound Canadian.'" It turned out that Valerie had lived in Toronto for 27 years. "When we explained what we were doing there, she got very excited and wondered if something from Barbuda would be going to 'The Museum,' by which she meant the ROM. Sending the collection to you guys would kind of close the circle."

Heard asked if the ROM might be interested in the specimens. We were! How could we turn down material from a place we had never heard of. We have now received the specimens, nicely mounted and labelled, which await incorporation into the ROM insect collection. This is certainly a new locality for our collection. As for the scientific importance of the specimens—only time will tell. They will first have to be authoritatively identified.

What this story does show is the impact that the ROM and its collections have on the psyche of the people of Ontario—even when they are freed from the constraints of winter and marooned on an almost deserted, idyllic tropical island.

**CHRIS DARLING** is senior curator in the entomology section of the ROM's Department of Natural History

## News

# What can be learned from Vesta?

**Rare specimens may provide insights into our solar system's infancy**

In July 2011, after a four-year journey, NASA's Dawn spacecraft entered orbit around the asteroid Vesta for a year-long scientific study. Meanwhile, right here in Toronto you can see a piece of Vesta in person. The ROM recently mounted a temporary exhibit of the world's most comprehensive collection of meteorites thought to be from that asteroid, the second most massive in our solar system. Thirty Vesta specimens are on display in the Museum's Teck Suite of Galleries: Earth's Treasures. These fragments, like the images and precise measurements being taken by the Dawn mission, are expected to provide insights into the birth of our solar system. "Unlike Earth's geology which is constantly evolving," says Dr. Kim Tait, ROM associate curator of Mineralogy, "asteroid development stopped very early in the process of planetary formation. Vesta is key to understanding our past—it's like a snapshot, frozen in time, taken when our solar system was formed more than 4.5 billion years ago." ROM scientists are keen to learn more in their upcoming studies into the Museum's Vesta meteorites.

This composite image shows the comparative sizes of eight asteroids. Until now, Lutetia, with a diameter of 81 miles (130 kilometres), was the largest asteroid visited by a spacecraft. Vesta, which is also considered a protoplanet because it's a large body that almost became a planet, dwarfs all other small bodies in this image, with its diameter of approximately 330 miles (530 kilometres).

Image of Vesta, NASA/JPL-Caltech/JAXA/ESA. Lute player ROM 958.118.2

## Curator's Favourite

*ROM magazine asks curatorial staff to share their favourite objects from the ROM's collections*

**Karin Ruehrdanz**
Curator of Islamic Art in the West Asian section of the ROM's Department of World Cultures

# The Lute Player

**Musician as metaphor for the princely way of life**

**Favourite object:** An earthenware figure from medieval Iran (late 11th–13th century)

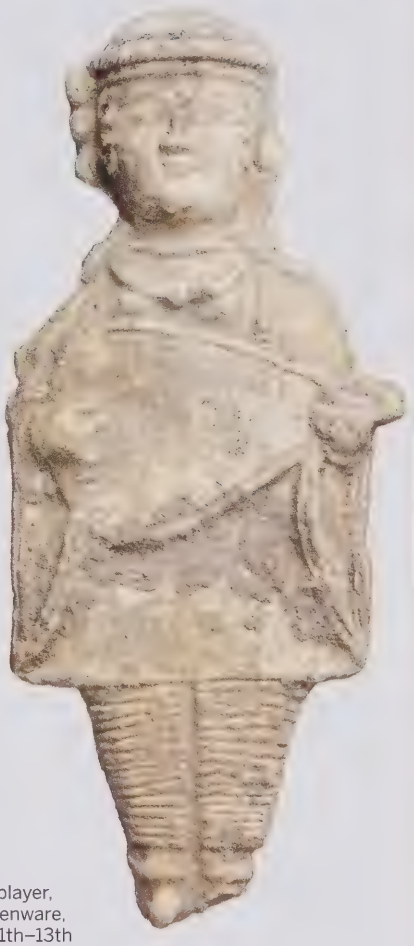
This sculpture is of a female lute player, whose clothing has been moulded with great attention to detail. Dressed in draped trousers and a rich tunic, she is adorned with several pieces of jewellery: a headband, tripartite hangings on the temples, and a necklace with medallions. Traces of slip-paint suggest that the details were once enhanced with colour. The musician's face conforms to the ideal of moon-faced beauty, reflecting the features of the Central Asian Turks who dominated the eastern part of the Islamic world after the Seljuk invasion in the late 11th century.

The 33-cm-tall figure is not a free-standing statuette. Its flat back side indicates that it was likely made to attach to a surface. Like figures assembled on similar Seljuk plaster reliefs, this one probably belonged to a larger colourful composition that would have displayed other entertainers, courtiers, and servants surrounding a feasting ruler.

**Why she chose it:** I'm drawn to this sculpture for two reasons. It depicts the subject of merry-making and what this tells us about social status. Equally important, it argues against the misconception of "Bilderverbot"—the interdiction of images. I have a keen interest in both.

Musicians were a popular subject in Iranian art, evoking the joy of entertainment and feasting. Together with singers, dancers, and attendants who served food and drink, they embodied the pleasant aspects of aristocratic life. Ostentatious display of leisure was part of the claim to high social status, whether by rulers or well-to-do urban people, and was accordingly reflected in the arts.

Probably the most persistent misconception about art from regions under Muslim rule is that figural representation was forbidden. Art in the service of religion, those pieces that would be encountered in mosques, is indeed aniconic. But in everyday life and at court, figurative sculpture had a place. A few preserved nearly life-sized statues and more small-scale figures made in the round and as part of reliefs, like this one, provide the most convincing evidence.



Lute player, earthenware, late 11th–13th century, Iran.

Sketch design of a truck body for use in ROM expeditions to Guyana, c. 1960.

## From the Archives
## Into the Wild

**A customized Jeep design for ROM research**

This original watercolour sketch, drawn and painted by J. A. Stuart circa 1960, illustrates a truck body designed specifically for the Museum. The Department of Mammalogy planned to use the Jeep for field expeditions to the back-country regions of Guyana in the early 1960s. These research and collecting trips were led by noted ROM mammalogist Dr. Randolph Peterson (1920–1989), whose interest in bats led to the ROM's having one of the finest bat collections in the world with more than 35,000 specimens. It is unknown whether the vehicle was actually acquired by the ROM and modified to the specifications outlined in the sketch.

The depicted cab was manufactured by Jeep and allowed for customized truck beds. Features designed for the ROM included a freezer unit, storage space for collected specimens, and a zippered plastic screen, or rain guard, to protect researchers from insects and the elements.

During the winter of 1961 Peterson and his colleague Karl S. Pogany, assisted by staff of the British Guiana Museum in Georgetown, spent two and a half months in Guyana and Trinidad collecting and studying specimens. The expedition, financed by the Booker Group of Companies and the Canadian National Sportmen's Show, began in Guyana on the Abary River and continued into the savannah and mountain regions in the Rupunini District in the south before moving on to Trinidad. The two-country trip generated 556 specimens for the ROM, representing 85 species, accompanied by photographs and field sketches.

Renowned for its biodiversity, Guyana has continued to be a frequent destination for ROM science curators following in Peterson's footsteps over the past 50 years, including recent trips by Dr. Mark Engstrom, Dr. Burton Lim, Dr. Hernán López-Fernández, Amy Lathrop, Ross MacCulloch, and Brad Hubley. Today, researchers employ the services of local guides to get around.

**ARTHUR SMITH** is head of the ROM's Library and Archives.

Reflections

## Passing into History

**For one archaeologist, re-visiting an old archaeological site is a reminder of his own mortality**

Recently, a colleague invited me to visit his excavations at an archaeological site just outside of Alliston, a short distance northwest of Toronto. He had been hired to excavate as much of the site as possible before it was destroyed by the building of a subdivision and thought I might be interested because I had discovered and tested the site . . . in 1973.

My discovery was a chancy thing, based on a tip by a colleague, Charles Garrad, who had heard that some artifacts had been found there by a farmer—the late Edward Banting. Edward was a nephew of Frederick Banting, one of the co-discoverers of insulin, and the farm had been Frederick's boyhood home. Edward walked me to a field on top of a hill where he had found two spear points, which, from other evidence I saw on the ground, convinced me that the artifacts were not the isolated losses of a passing hunter, but had come from a very old archaeological site.

Back at the ROM, I described the location to Dr. Walter Tovell, then a geologist and later director of the Museum. He knew the area and suggested that the hill may have been an island in an Ice-Age lake. This remark opened a door for me onto a 20-year journey into the very earliest part of the archaeological record, and the lives of ancient hunter-gatherers who colonized Ontario after the final retreat of the continental ice sheet.

Thirty-five years after beginning my journey I re-visited the site where, for me, it had all started. My colleague showed me his work and then, almost as an afterthought, took me to a hole in the ground and pointed out a soil stain in the bottom of his excavation. The stain marked the corner of a trench I had excavated at the beginning of my career. A silent witness to my work, the stain was buried together with tool fragments made by the people who lived briefly on the site 11,000 years before my excavations.

I found the juxtaposition of my work and an Ice-Age people unnerving—it was a powerful reminder of my own mortality. It also told me that my work had become a part of history just as the lives of the Ice-Age people before me. As a scholar of a historical science I was accustomed to seeing the events of the past unfold before me like a parade. But I had thought of myself as a bystander, timeless. How ironic for me, the time traveller, to suddenly realize at the edge of a contemporary archaeological excavation that I was simply another event in the parade. And that time passes for curators, as well as for the things they study.

**DR. PETER L. STORCK** is senior curator emeritus in the ROM's Department of World Cultures and author of the award-winning *Journey to the Ice Age* (2004).

A 1975 aerial photo with blue overlay showing Lake Algonquin and green oval indicating an island within it at the end of the Ice Age. Near Alliston, Ontario.

Peter Storck, Judith Buxton. Aerial photo, Peter Storck.

# Doomsday Can Wait

## The time for apocalypse may not be now, but the world as we know it will, eventually, come to an end

BY MARK KINGWELL

**December 21, 2012,** is going to be a bad day, apparently. The Maya calendar, one of the great Mesoamerican civilization's most notable achievements, ends with that particular winter solstice. Popular theories have interpreted this as an end-of-days prophecy. Go on, you still have time—get your life in order.

Predictions of apocalypse are a dime a dozen, as I have cause to know. Some 15 years ago I wrote a book called *Dreams of Millennium* which among other things catalogued the dizzying variety of dates proposed as the endtimes, discovered or calculated by seers, prophets, priests, and mad people of all stripes. Not many of these predictions have the mathematical elegance of the Maya version, consistent with their astonishing architecture, effective written language, and sophisticated political organization. But they all share the feature of being wrong. So far.

The future, meanwhile, remains a resource of infinite pliability. When the Rev. Harold Camping predicted that the Rapture would occur on May 21, 2011, most people reacted with amused contempt. A few true believers bought in, however, and were manifestly baffled that their faith, and subsequent divestment of private property, had not been rewarded with transport into the heavens. Camping, for his part, did the sensible thing and calculated a new date. That which has not yet happened cannot be false. (Or true, either.)

If the end of the world has not come, a train forever announced that never arrives, the same cannot be said for the end of the world as we know it. The Maya are themselves a poignant case in point. Thriving from 500 BCE to the time of the Spanish conquest, theirs was a remarkable run of cultural success that came to a fairly abrupt end. The Maya did not disappear entirely, but their glory was broken; the world they had constructed and nurtured was destroyed.

Such collapses are the norm, not the exception, in human affairs. If you take a long enough view, no civilization stands the test of time. This can be hard to accept, especially from within the glory. You might say that a great civilization generates, as one of its essential by-products, the delusion that it will escape the fate of all others. In this, as in many things, civilizations resemble the humans who create them. Our personal mortality is mostly unthinkable—and yet, the family photographs that so many of us use to decorate our homes are daily evidence that you and I, too, shall pass. I know, sorry. Is there any room for hope here?

Well, in 2006 the American philosopher Jonathan Lear published a book called *Radical Hope: Ethics in the Face of Cultural Devastation*. Lear's meditation centred on Plenty Coups, the last great chief of the Crow Nation, who oversaw the transition of the Crow from a nomadic hunting culture, roaming the Great Plains in search of buffalo, to a people confined to reservations. Just before his death in 1928, Plenty Coups told his story to a white friend, Frank B. Linderman. "When the buffalo went away the hearts of my people fell to the ground," he said, "and they could not lift them up again. After this nothing happened."

Illustration: Bob Hambly

Lear interprets this "nothing happened" as a genuine event horizon. The Crow world was over, because nothing now made sense. Nevertheless, Plenty Coups was able to lift himself into a transcendent cultural position, what Lear variously calls "ethics at the horizon" and "reasoning at the abyss." Radical hope, he argues, is that which "anticipates a good for which those who have the hope as yet lack the appropriate concepts with which to understand it." The end of the world as we know it is accepted as, paradoxically, the only way of preserving the world's possibilities.

You and I will not be here to see those possibilities personally, of course. "There is hope," Franz Kafka told his friend Max Brod when they were discussing the concept of the Messiah. "Just not for us." ○

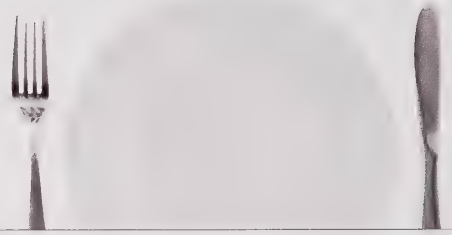
---

**MARK KINGWELL** is a professor of philosophy at the University of Toronto and the author, most recently, of *Glenn Gould* in Penguin's Extraordinary Canadians series.

# Bats on the Menu?

## Listen to Leviticus . . . and think twice before dining on this delicacy

BY JAMES CHATTO



This fall, Food Studio will be celebrating bats, Halloween, and the book *Burton and Isabelle Pipistrelle: Out of the Bat Cave* with ghoulishly delicious snacks and treats.

**In my 30-odd years of writing about food and drink,** bats have never featured prominently. Barring the bat on the Bacardi bottle or bat-shaped gingerbread cookies for Halloween, they have remained on the gastronomic periphery, sometimes providing a background aerial cabaret to al fresco dinner parties on warm summer nights, taking care of mosquitoes and therefore to be encouraged rather than hunted. Seventy percent of the world's bats eat insects and the rest eat fruit or nectar, with one or two exceptions. In the New World, bulldog bats trawl lakes with their talons to catch and eat fish. The spectral bat hunts reptiles, amphibians, birds, large insects, and even other bats, using its three-foot wingspan to glide silently down onto its prey. Only one species—the common vampire bat—treats humans as a source of nourishment. Occasionally people have tried to get their own back by eating bats . . . bad idea.

It's not as if we haven't been warned. Leviticus includes the bat in the list of birds we should not eat, right after the stork, the heron, and the lapwing. Deuteronomy repeats the injunction. And there is the cautionary tale of rocker Ozzy Osbourne who bit off the head of a live bat during a concert in 1982. He has always claimed he thought it was a rubber toy but the bloody moment got him banned from Las Vegas and, more immediately, whisked off to hospital for rabies shots. This was a wise precaution: bats are remarkably rich reservoirs for viral diseases including, some scientists believe, the SARS virus that spread from China in 2002 and brought Toronto to its knees. I had always understood that SARS spread into the human population because people were eating palm civets, but apparently that theory has been displaced. More work is needed before we can know where to lay the blame, but bats sold as a delicacy in the food markets of southern China are considered prime suspects in some circles.

Travellers to Laos and Papua New Guinea have been known to join the locals at lip-smacking bat dinners and word is that the meat tastes richer than chicken. But I'd think twice about tucking into bat soup on Guam. For decades, scientists were puzzled by a sudden dramatic rise in cases of lytico-bodig disease among the island's Chamorro people, a fatal complaint with symptoms like ALS, Alzheimer's, and Parkinson's all rolled into one. Blame the arrival of guns in the 1920s. Suddenly farmers were able to slaughter the local flying foxes by the hundred instead of nabbing the occasional one for the pot. The problem was that these bats feed on the fruits of a local cycad—fruits that are packed with neurotoxins that build up in the bats' tissues without affecting them. Locals would cook the whole, unskinned bat by boiling it in milk for an hour or so and then eat the lot, unaware they were ingesting poisons. Only now has the disease begun to disappear because the flying foxes have been hunted almost to extinction. And thus the whirligig of time brings in his revenges. o

**JAMES CHATTO** is a Toronto-based food writer and the editor of *harry* magazine.

**ROM MEMBERS** ROM Members receive a 10% discount in c5 Restaurant Lounge and Food Studio.

Female *Myotis yumanensis* bat. Oregon. Michael Durham/Minden Pictures/National Geographic Stock

# Burning Hot or Not?

## How speed helps falling stars keep their cool

BY IAN NICKLIN

**Q** **Do meteorites cause fires when they land on Earth?** — N. K., Toronto, ON

**A** Over the 11 years that I've been studying space rocks at the ROM, I've heard many stories about meteorites causing forest fires or even burning down barns. It's understandable why this might be thought possible. We know meteors to be fiery balls of flame that can be seen burning across night skies.

But there are a few reasons why meteorites don't in fact cause fires. The first is speed. When meteors hit Earth's atmosphere they are travelling at tremendous speeds, 17 kilometres per second or faster. At this rate, air literally cannot get out of the way fast enough to flow smoothly over the meteor. Instead, it rapidly becomes extremely compressed at the meteor's leading edge.

This compressed air generates an enormous amount of heat, which in turn heats the surface of the meteor to white-hot temperatures, causing the surface to melt. And although the meteor slows as it traverses our atmosphere, it is still travelling exceedingly fast during this "burning" phase—fast enough for air pressure to rip away molten surface material as quickly as it is produced. And therein lies a clue as to why meteorites do not cause fires. The white-hot surface has little or no time to heat the meteor's interior—the part that will eventually hit land.

Heat conduction is a less significant factor. Most meteorites have a composition similar to terrestrial rocks, which are not very good conductors of heat. But even in iron-nickel meteors, which are better at conducting heat, the burning-hot surface material still does not stay intact long enough for heat to penetrate into the meteor to any great depth. In the few documented cases where someone has had the opportunity to pick up a meteorite immediately upon its landing, the person invariably reports the rock to be only slightly warm to the touch, if at all.

For these reasons, meteorites are simply not hot enough to cause combustion when they land. Unless of course they are enormous. Meteors tens of metres in diameter, especially iron-nickel types, would strike the Earth with a force similar to setting off megatons of dynamite. The Canyon Diablo crater in northern Arizona, for example, was created by a meteorite about 50 metres in diameter that struck the Earth some 50,000 years ago. The energy released by its impact is estimated to have been equivalent to 1.7 megatons of TNT. The scene for kilometres around the impact site would have been one of utter devastation. In these rare cases, we'd have more terrible things to worry about than fire! o

**IAN NICKLIN** is a technician in the Earth Sciences section of the ROM's Department of Natural History.

A METEORITE IS BORN . . . MAYBE
Most meteors burn up in the atmosphere but, with luck, some land on Earth and become known as meteorites.
Bottom: The Canyon Diablo crater, impact site of a nickel-iron meteorite that fell to Earth 50,000 years ago.

Meteor: Getty Images. Photographer: Ian McKinnell. Canyon Diablo crater: Shutterstock Images. © Walter G. Arce

Paleontologist Dr. David E. Evans (left) and fellow team member Dr. Tim Rowe [illegible] cases of [illegible] specimens preserved in the Dragon's Tomb [illegible]

# The Dragon's Tomb

## Investigating dinosaur skeletons in Mongolia

BY DAVID EVANS (WITH SHIONA MACKENZIE)

**The badlands of Mongolia** are known for the amazing dinosaur bones they've yielded. While isolated skeletons are surprisingly common there, bone beds (mass accumulations of bones or skeletons) are still relatively scarce. But thanks to its sheer mass of skeletons including those with intact skin, one Mongolian bone bed, known as the "Dragon's Tomb," is proving to be among the most spectacular single sites ever discovered in Asia.

Located in the fossil-rich badlands on the south side of Altan Ula, the Dragon's Tomb was first explored by the Russian Academy of Sciences from 1946 to 1949. Russian paleontologists discovered six articulated skeletons of the large duck-billed dinosaur *Saurolophus*, many of them complete with skin impressions. When the Russians left, the site was far from exhausted.

Unfortunately, since then, poachers wielding jack-hammers and dynamite have vandalized the site, illegally exposing and damaging numerous undocumented skeletons in their search for souvenir skulls, teeth, and claws. This illicit activity supplying the black market doesn't just make it difficult for paleontologists to collect complete skeletons to display in museums. National treasures important to Mongolia's tourist trade and data critical for paleontological research and education are being lost. On my first visit in 2009, it was clear that this rich trove of dinosaur "mummies" was in danger of being completely destroyed.

Determined not to see any more invaluable scientific data lost, I accepted an invitation from my friend Dr. Michael Ryan of the Cleveland Museum of Natural History and his Mongolian colleagues to help conduct the first detailed, systematic study of the famous, yet poorly documented, Dragon's Tomb.

The project began in earnest in 2009. Our survey quickly revealed an impressive number of important material remains. Almost immediately, I found a good skull of a large *Saurolophus*. During preliminary paleontological work, we measured more than 50 bones and have discovered that at least three different size classes of *Saurolophus* were present. We also uncovered the first specimen of the carnivorous *Tarbosaurus* from the site.

Upon returning in August 2010, we produced detailed maps of the exposed bones and skeletons, and made moulds of the plentiful *Saurolophus* skin impressions. Our team also conducted sedimentological work at the site, which suggests the deposit has not yet been fully exposed by poachers. This encourages us to believe that well-preserved specimens still remain entombed at the site.

With the help of a new grant from the National Geographic Society, we return next year to continue to uncover new scientific data on this unique site and to raise awareness of the impact of fossil poaching in Mongolia and throughout the world. ○

---

**DAVID EVANS** is a curator in the Paleobiology section of the ROM's Department of Natural History. Shiona Mackenzie is a ROM volunteer and freelance writer with 17 years of international experience.

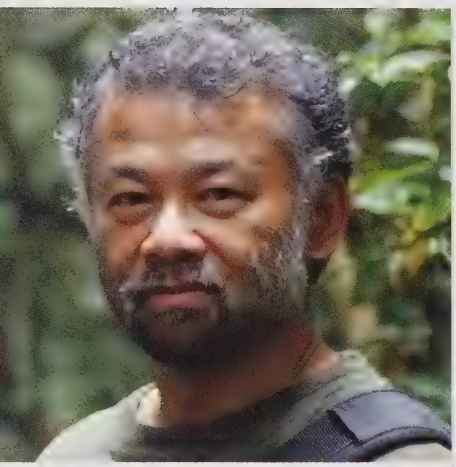
**Left:** A series of articulated *Saurolophus* tail vertebrae with skin impressions exposed at the surface by fossil poachers.

Follow the paleontology adventures of David Evans online at **blog.rom.on.ca/tag/david-evans/**

# Night Riders

## A ROM mammalogist sets the record straight about these feared denizens of darkness and their key role in the environment

BY TESS URBANOWICZ



**Burton Lim**
ASSISTANT CURATOR OF MAMMALOGY
Department of Natural History

**Academic Positions**

**1996–present**
**Assistant Curator of Mammalogy**
Department of Natural History, ROM

**1986–1996**
**Curatorial Assistant**
Department of Mammalogy

**1984–1986**
**Research Assistant/Technician**
Department of Mammalogy

**Education**

**2007**
Doctor of Philosophy, Zoology, University of Toronto

**1996**
Master of Science, Biology, York University

**1984**
Bachelor of Science, Zoology, University of Toronto

**What began with a zoology course** at the University of Toronto in 1983 grew into a lifetime interest for Dr. Burton Lim—bats. As a ROM assistant curator of mammalogy, Lim studies mammal biodiversity and the evolution of bats. It's not surprising that these nocturnal creatures caught his attention. The bat is the mammal with the second highest number of species (after rodents).

Because of this diversity, explains Lim, the best places to study bats are in areas with large and diverse populations—typically hot tropical climes. Lim's studies have taken him to 20 countries and counting, the majority in South America, but also China, Vietnam, and Indonesia. "Bats are truly an adaptive species," he says, "and some can even tolerate certain levels of human disturbance."

In Ontario, there are eight species of bats. Those that hibernate return to the same cave, old mineshaft, or building every year. In selecting summer roosting sites, bats seek heat, shelter, and darkness—making our attics more than a suitable fit. But we should consider ourselves lucky that these occasional visitors usually roost alone or in small groups. Lim recalls one cave in Mexico that contained more than a thousand bats.

Though adaptable, bats are creatures of habit. In the field, Lim and his team rely on bats' nightly feeding routines to know when they will leave their cave so that the team can surprise them with nets. But bats are smart, and this tactic works best on the first night.

Perhaps because they are nocturnal fliers, bats have undeservedly become universal symbols of darkness and evil—from the ancient Maya god of the underworld to today's pop culture associations with blood-sucking vampires. And an unwarranted fear has evolved around them. "What most people don't realize," says Lim, "is that we rely on bats for the upkeep of our environment." Bats consume about half their body weight in insects in a single night. In Ontario, this control of insect populations is of great benefit to agriculture. In the tropics, fruit-eating bats disperse seeds, thus aiding in reforestation.

One aspect of bat behaviour is controversial among scientists. Some wonder whether bats have a form of "lunar phobia." Bats seem to be less active on nights with a bright moon.

Burton Lim holding a fruit-eating bat, *Artebeus planirostris*, during a recent fieldtrip to Suriname.

According to Lim, "The logical explanation is that light makes them more visible to both their prey and their predators; but something about the notion that bats have fears not all that different from human ones makes them all the more fascinating."

See page 36 for details about Lim's recent work in Suriname. ○

**TESS URBANOWICZ** is an intern with Royal Ontario Museum Press and *ROM* magazine.

### Giving Bats a Good Name

One of Lim's first ROM projects was creating the popular Bat Cave, which gives visitors an up-close look at how bats live. Recently, Lim was scientific consultant for the children's book *Burton and Isabelle Pipistrelle: Out of the Bat Cave*, by Denise Dias and Tara Winterhalt, a tale of two bats who sleep in the Bat Cave by day and explore the Museum by night. *Burton and Isabelle Pipistrelle: Out of the Bat Cave* is a ROM Press publication, available Fall 2011.

The roots of a fig tree give access to the sinkhole opening of St. Clair Cave, the model for the ROM's Bat Cave.

Burton Lim, Chequita Bhinki. Burton Lim with bat, Piotr Naskrecki. St. Clair Cave, ROM

## JAMAICA

**Burton Lim**
ASSISTANT CURATOR
Mammalogy

In February and March 2011, Burton Lim returned to Jamaica to study the species diversity and distribution of bats. With University of Toronto graduate student Lina Arcila, he sampled six sites across the island. The first was St. Clair Cave, the model for the ROM's Bat Cave exhibit. It proved to be the most diverse site with nine species documented there. It also had the highest abundance of bats—thousands come streaming out the cave's sinkhole opening at dusk. Lim's 2011 samples from the Caribbean will be compared with those from previous fieldwork done in Central and South America to investigate the question of how biogeographic processes are involved in why species inhabit the places they do.

## QUEBEC

**Trudy Nicks**
SENIOR CURATOR
Anthropology

The field site was a stark white room with tables covered in stark white ethafoam. For my research visit this past April 4 to 6, Canadian Museum of Civilization staff had laid out dozens of Abenaki wood-splint baskets as well as the wooden moulds used to guide the weavers. The baskets show innovation through time in both design and material. Supporting documents tell of collecting trips by early anthropologists, and identify by name more than seven generations of skilled basket makers from the Abenaki community of Odanak, Quebec. This research is part of a larger study of museum collections to identify the histories and material culture associated with local and government economic programs in First Nations communities in Ontario and Quebec in the 20th century.

## GUYANA

**Ross MacCulloch**
ASSISTANT CURATOR
Herpetology

Ross MacCulloch has been researching the herpetofauna of Guyana since 1990. His fieldwork has concentrated on the mountainous region of western Guyana, especially on the tepuis (flat-topped mountains). The region has been designated a Biodiversity Hotspot by global conservation organizations, and the ROM has many unique specimens from MacCulloch's fieldwork in its collection, including 15 new species.

This year, MacCulloch, with the ROM's Amy Lathrop and other researchers, is completing a book on the amphibians and reptiles of Guyana. The book will serve as a summary of the fauna, an identification guide for those working in the region, and a stimulus for future research.

## SARAWAK (BORNEO)

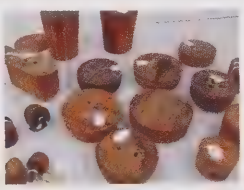
**Chris Darling**
SENIOR CURATOR
Entomology

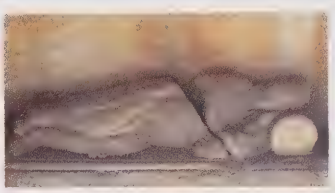
Chris Darling and his colleagues in the US and Australia continue to survey insects at Gunung Mulu National Park. Park staff collect samples from the traps monthly and with each of Darling's return visits, new traps are set. On his latest trip, Darling was accompanied by ROM mycologist Jean-Marc Moncalvo, who made an initial survey of the park's fungi. The high point was successfully climbing the 2,375-metre Mt. Mulu. Back at the ROM, the first insect samples have been sorted and specimens sent to specialists. Already many new species have been identified, including a new genus of parasitic wasp. These samples will continue to add to our knowledge of Sarawak insects for the foreseeable future.

## CHINA

**Ka Bo Tsang**
ASSISTANT CURATOR
Far Eastern

Last fall Ka Bo Tsang visited grottoes on Longshan (Mount Dragon) near Taiyuan city, Shanxi province, China. She was investigating the possibility that a stone statue there portraying Qiu Chuji (1148–1227), a prominent Daoist priest of the Quanzhen order, could provide evidence for reconsidering the identity of a priest figure in one of the ROM's two Daoist murals—*Homage to the Highest Power*. She also travelled to Dazu, Sichuan province, where she compared iconography in the sculptures of spirit-guardians with those depicted in the ROM's murals. Her findings will be published in *Beyond Clouds and Waves: Daoist Paintings in the Royal Ontario Museum* (ROM Press, 2012).

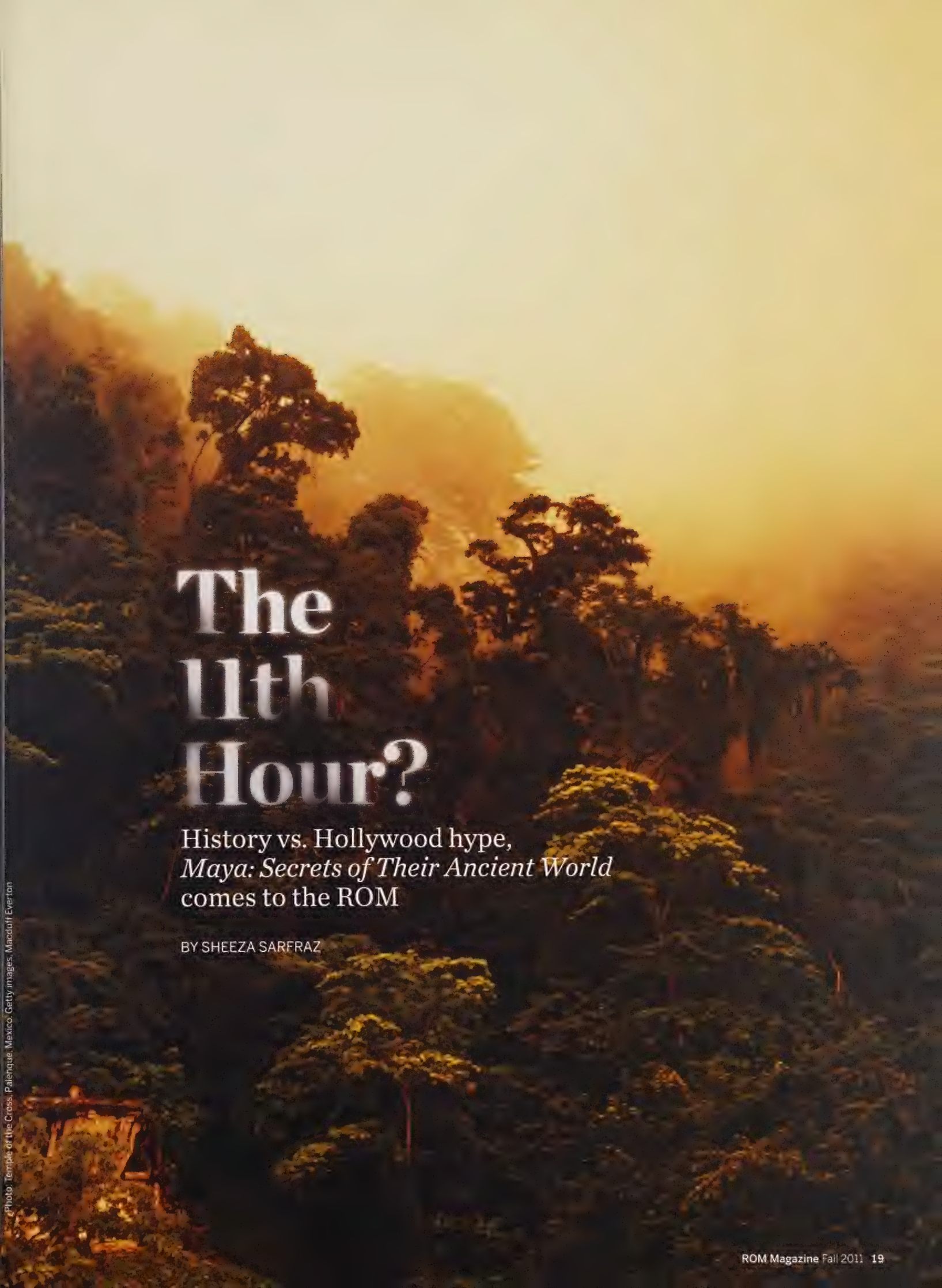




Leach's single leaf bat, Burton Lim. Baskets, Trudy Nicks. Kanaima tree frog, Amy Lathrop. Chris Darling, Jean-Marc Moncalvo, ROM. Wasp, Henri Goulet. Ottawa. Statue of Qiu Chuji, Ka Bo Tsang.

## Where in the world are they?

The who, what, and where from our international curatorial team



# The 11th Hour?

## History vs. Hollywood hype, *Maya: Secrets of Their Ancient World* comes to the ROM

BY SHEEZA SARFRAZ

Photo: Temple of the Cross, Palenque, Mexico: Getty images, Macduff Everton

**The ancient Maya civilization of Mexico** and Central America has become more widely known in the past few years, partly because of two major films: Mel Gibson's *Apocalypto* (2006) and Roland Emmerich's *2012* (2009). This current heightened interest in all things Maya owes much to the Maya Long Count calendar—the subject of *2012*—which has been splashed across the Internet and every other medium of communication as a prophecy of doomsday, drawing attention away from the real mysteries of the Maya. While those big-budget films inject some essence of Maya culture into our popular culture, they also perpetuate myths and misconceptions, the most radical being that the Maya calendar is a harbinger of the end of time. This winter, the Royal Ontario Museum's Maya exhibition will shed a more balanced if less sensational light on the ancient customs and beliefs of this remarkable society.

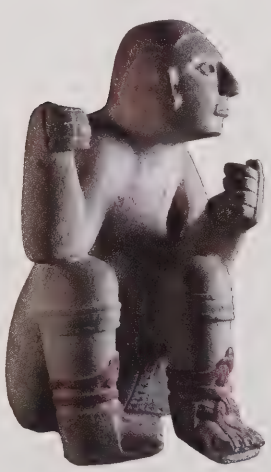
Dave Hollands, head of Exhibits & Design, faced a challenge. One objective of the Maya exhibition was to convey—through displays of majestic architecture and elaborate lifestyles—the grandeur of an advanced civilization in a tropical rainforest setting. But how to create the illusion of magnificent temples and lush jungles in Toronto in winter? "The idea," says Justin Jennings, curator of New World Archaeology, "was to design the exhibition such that people get a sense of what it was like without feeling as if they are in a theme park."

To visit the exhibition, one must pass through a temple facade under the watchful eye of the Witz monster. This entrance represents a portal to the Maya underworld but it transports visitors into the vibrant everyday Maya world, where they are greeted by the statue of a king, the sounds of the jungle, and Maya voices. Many of the exhibition's artifacts are from the city of Palenque, which may not have been the largest of the city-states in the Mayan world, but serves as an exquisite example of a Maya city. The recreated images of Palenque in the exhibition's introductory section show it replete with a palace, temple-pyramids, tombs, and sculpture.

One showpiece of the exhibition is the Mask of the Red Queen. Discovered at Palenque in 1994, the Red Queen, a member of the Classic Maya ruling family, is so called owing to the red cinnabar powder that covered her remains. The mosaic mask that covered her face in her sarcophagus is comprised of more than 1,100 pieces of malachite, shell, and bone affixed to a stucco base.

The Classic Maya period (250–900 CE) was a time of divine rulers and city-states. Unlike Egyptian or Roman civilization, the Maya were not united under one ruler. There was no single empire, but their city-states stretched from central Mexico south to Honduras, eastern Guatemala, and northern El Salvador. One result of this wide distribution was that more than 30 languages

**Left:** Maya ball court, site of a sacred and deadly sport.



**Left:** Standard bearer in the form of a seated warrior. Found on the Venus Platform in Chichén Itzá, this limestone sculpture depicts a seated warrior wearing a loincloth, anklets, and knotted sandals. His pendant bears the Ik' symbol, a day-sign in the ritual calendar. Because archaeologists suspect the holes in the figure's clenched hands once held poles, this sculpture has been named "the standard bearer." Early Post-Classic Period (900–1250 CE). Chichén Itzá, Yucatán, Mexico.

*Exhibition captions written by Justin Jennings.*

Photo: Maya ball court, Getty images, Roc Canals Photography. Museo Regional de Yucatán Palacio Cantón 10-290459; photo by Jorge Vertiz/CONACULTA-INAH

## *The Maya rulers, though human, professed to have special connections with their deities*

evolved. A single court language, which allowed nobles throughout the Maya world to converse, was also used for most of the glyphs.

The Maya rulers, though human, professed to have special connections with their deities. Considered conduits to the gods, kings and queens were regarded with the utmost respect, in the belief that after death, they might rise to the heavens and become a part of the cosmos. To that end, it was important for them to maintain good relations with the gods—which usually involved the spilling of blood, including that of the royals themselves. In Jennings's view, the basis of this practice is a belief in "an essence" that moved through the world, and was released by the spilling of blood. Maintaining the flow of this essence was essential for maintaining good relations with the gods, and therefore was essential for life. Royalty would have more sacred blood and therefore more of that essence. The Maya practiced human and animal sacrifice by removing either the head or the heart, though decapitation was the more common.

A healthy communication with the deities meant a prosperous kingdom, and sacrifices were made to prevent ill fortune. One sacrificial practice was auto-bloodletting, believed to forge a link between humans and gods. Stingray spines and obsidian blades were often used to draw blood from the tongue, ears, or penis. A tablet in the exhibition depicts a royal connecting with her ancestor who is now part of the cosmos with the gods. Blood is collected on paper by pulling a rope with thorns through the tongue. The paper is then burned, the smoke creating a serpent in whose mouth the ancestor appears as an oracle.

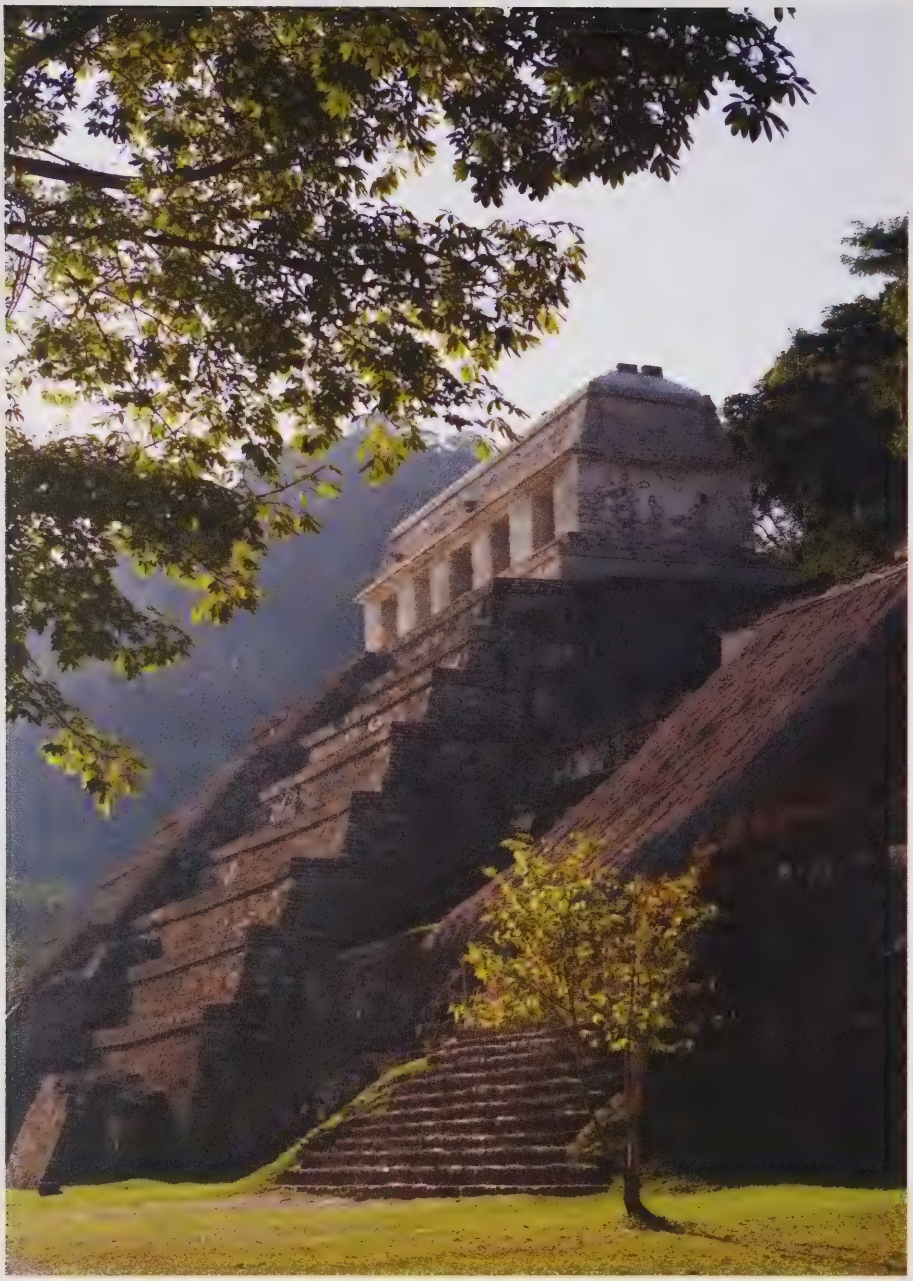
Another activity with great religious and political connotation was the sacred, and deadly, ball game. The players had to pass a rubber ball around a narrow court flanked by sloped walls without touching the ball with either their hands or feet. The ball game was not merely a pastime, but a sport full of ritual significance. In later periods, the leader of the losing team was sometimes sacrificed; however, it was not unusual for the leader of the winning team to present himself to the losing team for decapitation. To be sacrificed was considered an honour.

The pre-Columbian cultures of Mesoamerica measured time in cycles with three types of calendars: the 260-day Tzolkin calendar (as the Maya called it) or the Sacred Round, the 360-day solar Haab calendar, and the Calendar Round, which merged the two previous ones. The origin of the 260-day calendar is unknown but there are varying theories. One of them is that it is a nod to human pregnancy, from the first missed menstrual period to the date of birth. Another is that it's because numbers were of great importance to the Maya, especially 20 (the number of a person's fingers and toes) and 13 (major joints where disease could strike: two hips, two knees, two ankles, one neck, two shoulders, two elbows, and two wrists).

The Tzolkin calendar was a permutation calendar combining 20 day names with 13

**Above:** Mask of the Red Queen. This mosaic mask covered the Red Queen's face in her sarcophagus. It is comprised of more than 1,100 pieces of malachite (a green mineral), shell, and bone affixed to a stucco base. Because the stucco had long since decomposed when the tomb was opened in 1994, conservators had to painstakingly refit the tiles to form the mask. Late Classic period (600–900 CE), Palenque, Chiapas, Mexico.

Photo: 10-461006 © Jorge Pérez de Lara, Arqueología Mexicana/Raíces/CONACULTA-INAH



**Left:** Temple of the Inscriptions in Palenque, Chiapas, Mexico.

numerals, which resulted in 260 days but did not cover a full solar year. To account for days according to the solar year, Maya astronomers devised the Haab calendar, similar to our Gregorian calendar, which kept the 20 day names, but instead of 13 numbers (or uinals), had 18 uinals—coming up to a total of 360 unique days. But they were still not completely satisfied. The Haab calendar did not entirely match the time it takes for the sun to complete a full revolution—it was off by five days. In order to prevent complicating the calendar any further, five nameless days known as the wayeb were introduced. At least in later periods, the wayeb was considered dangerous and unlucky, and it was believed that the Earth was left unprotected by the gods during this period, allowing spirits from the underworld to wreak havoc. Special rituals were performed during this time to ward off evil forces.

The Maya combined the Haab and Tzolkin calendars to form the Calendar Round, the most important calendar with the exception of the Maya's Long Count calendar because it could keep track of longer cycles of time. The Long Count calendar was developed because Maya historians wanted a calendar that could record their history for years to come. The Maya believed in a concept called the Great Cycle—a time period lasting for approximately 5,125.36 years—and they devised the Long Count calendar to keep track of the entire cycle.

This calendar has garnered growing attention as we approach its "end," said to be on the 21st of December, 2012. Also the date of the winter solstice, it has been touted as the first time in 25,800 years that the sun will align with the centre of the Milky Way galaxy. Winter solstice, end of the Long Count calendar, alignment of the sun with the centre of the Milky Way—it certainly sounds thrilling—all these events occurring simultaneously. The only problem is, they don't.

Most Maya scholars now suggest that the last recorded cycle of the Long Count calendar actually ends December 23, 2012—not on the winter solstice. And there is little significance in the sun's alignment with the Milky Way in 2012. "The sun passes through this point every December solstice and has been doing this for the last 50 years or so," says ROM astronomy

**Left:** Tablet of the Warriors from Temple XVII
For Classic Maya royalty, it was a great accomplishment to capture an enemy in battle, then humiliate, torture, and finally sacrifice him to your city's patron god. This panel celebrates the capture on January 14, 695 CE, of an enemy named B'olon Yooj. He is shown kneeling at the feet of his captor, Palenque's ruler, Kan B'alam II (ruled 684–702). The ruler carries a spear and wears the headdress of the War Serpent, Waxalju'un Ub'aah Kan.
Limestone. Late Classic period (600–900 CE), Palenque, Chiapas, Mexico.

Photo: Temple of the Inscriptions at Palenque, Getty images; photo by Frans Lemmens. Tablet of the Warriors from Temple XVII, Museo Regional de Chiapas 10-57396; photo by Jorge Vertiz/CONACULTA-INAH

# *The Maya believed in a concept called the Great Cycle— a time period lasting for approximately 5,125.36 years*

**Left:** Incense burner stand depicting the Jaguar God of the Underworld. On his nightly journey through the underworld, the Sun God, K'inich Ajaw, transforms into the Jaguar God of the Underworld. His daily trip mirrored those taken by the deceased. This vessel depicts three figures from top to bottom: a seated ruler or priest dressed as the Jaguar God of the Underworld, a similarly garbed noble emerging from the head of a serpent, and the head of a jaguar. Ceramic, Late Classic period (600–900 CE), Comitán, Chiapas, Mexico.

**Left:** Altar commemorating the end of a k'atun in 682 CE. At Toniná, monuments of rulers were often paired with circular altars that celebrated important events such as a military victory or the completion of a ritual. These disks tend to feature two sets of glyphs. One, around the diameter, describes the event; the second, set in the centre, dates the monument. This altar celebrates the completion of a k'atun (a time-cycle) that ended in 682 CE (Long Count date 9.12.10.0.0 9 Ajaw). Sandstone, Late Classic period (600–900 CE), Toniná, Chiapas, Mexico.

**Right:** Sculpture depicting a captured noble from Anaité. This hunched captive with his hands tied behind his back is dressed as the Jaguar God of the Underworld, and likely is being prepared for sacrifice. The inscription on his thigh reads, "Green Turtle, Lord of Anaité," Anaité being a secondary city embroiled in the conflict between Palenque and Toniná. Sandstone, Late Classic period (600–900 CE), Toniná, Chiapas, Mexico.

educator Ian McGregor. "It was actually at the 1998 winter solstice that the sun appeared closest to the Milky Way's centre. Believers in the idea of a great alignment in 2012 are trying to match up the end of a Maya time cycle with a celestial event that has already passed."

Perhaps most importantly, there is no doomsday scenario in Maya records that we know of. In the absence of any Maya writings on the subject, it's more likely the Maya simply assumed that after the last recorded cycle, a new cycle would begin.

As the ROM prepares for the Maya exhibition, however, there are believers in our civilization's collapse at the end of 2012 who prepare for safety. The village of Bugarach in the south of France is now on the receiving end of a stream of visitors who believe that this tiny village with a series of underground caverns is the one place on Earth that will survive Armageddon. In the past, Bugarach's geological make-up has been a source of imaginative speculation that the mountain may have magical power. And now, it seems to have joined the ranks of *Apocalypto* and *2012*, adding to the hysteria surrounding the end of the Maya calendar. o

***Maya: Secrets of Their Ancient World*** opens November 19, 2011, and runs until April 9, 2012, in the ROM's Garfield Weston Exhibition Hall.

The official guide to *Maya: Secrets of Their Ancient World* accompanies the exhibition. (Royal Ontario Museum Press, 72 pages, softcover, $5, tax included.) Available November 2011 at the ROM, bookstores, and online.

photo by Jorge Vertiz. Sculpture, Museo Regional de Chiapas (D-586695); photo by Javier Hinojosa/CONACULTA-INAH

# THE MAKING OF *FRESH FLOWERS*

BY CHARLIE SCHEIPS

**On a visit to Paris in the spring of 2005,** I had the good fortune of being invited with David Hockney and a few others for lunch with Pierre Bergé and Yves Saint Laurent at their famous apartment on the rue Babylone. During lunch, Mr. Bergé told me that their foundation, housed in the former Yves Saint Laurent headquarters on the Avenue Marceau, would soon be mounting exhibitions. He mentioned how much both he and Saint Laurent would love to mount a show of Hockney's work.

Over the next couple of years, we came up with several ideas for a Hockney exhibition, but each of the concepts was eventually abandoned for one reason or another. Then, after Saint Laurent's death in 2008, the Fondation Pierre Bergé/Yves Saint Laurent expressed renewed interest in the project. Whenever I was in Paris, I would go there for meetings as we struggled to think of an appropriate show for the venue. But we were stymied by relatively small gallery space and the fact that, like most artists, Hockney was more interested in his current work than in retrospectives.

The following May, 2009, I visited Hockney in Bridlington where he was busy painting Yorkshire landscapes. By this time, he had also created more than 100 iPhone drawings that he had sent me and a few dozen others of his friends and family each morning by e-mail. One night at dinner, the iPhone work suddenly became the obvious focus for the show—it was Hockney's most recent work and had a place within the larger context of his oeuvre and in the history of his playing with technology and reproduction. I suggested offering the iPhone work to the Fondation as a possible exhibition idea. Hockney was enthusiastic and told me to propose it "and see what Pierre has to say." Hockney's studio assistant, Jean Pierre de Goncalves de Lima, liked the idea, too. He had already collected the iPhone work in a bound book he'd entitled "Fresh Flowers: The Bridlington Home Deliviary Company." I liked the name and liked it even more in French—*Fleurs fraîches*.

Over the weekend before my meeting with the Fondation, I prepared a presentation for Mr. Bergé—even going so far as to have Hockney e-mail me an iPhone drawing of the words in French, done in his hand. When I presented the idea to Bergé a few days later he was thrilled. It would be the first showing of this body of work to the world. He gave me the "go ahead" to figure out how we could present such tiny works in a gallery setting.

After I returned to America in August, my good friend Ali Tayar, an architect and furniture designer, invited me out to Fire Island near Long Island, New York, for a weekend. I told him about the exhibition concept and he was immediately captivated. We spent that whole weekend sketching out plans of how one could mount the miniscule works for a large audience. Nothing like this had ever been done before.

Back in New York, Tayar created working drawings and even a scale digital animation of the exhibition. We originally thought we'd need a "computer brain" to manage the images, which we imagined would be blown up and shown on LCD screens. But we realized that showing the works on the actual devices on which they were made would work better, with a slide show and projections to provide a more in-depth understanding. In February of 2010, Tayar and I visited Hockney at his Yorkshire studio. There we saw how Hockney used MDF fibreboard floor to ceiling in his studio with blocks of MDF on which to hang his multi-panel paintings while working on them. This gave Tayar the inspired idea of having oak-lined MDF armatures built to hold the iPhones. This and Tayar's keen ability to understand and translate into drawings my ideas of how the show should look made him the natural choice to design the show. Soon afterward, the Fondation contracted him for the job.

When the iPad was introduced in April 2010, Hockney immediately began making amazing drawings on this new and

**Opposite:**
David Hockney in Yorkshire drawing an image for the ROM show.

**Right:**
David Hockney, untitled, 7 December, 2010. iPad drawing

**Far right:**
David Hockney, untitled, 17 June, 2010. iPad drawing.

**Right:**
David Hockney, untitled, 24 May, 2009. iPhone drawing.

larger tablet. Realizing how important this new work would become, Tayar expanded on the same idea that had already been approved, designing a new armature for the iPads.

In September 2010, I went to Paris in advance of Hockney's arrival. To help organize the exhibition Hockney's technical assistant, Jonathan Wilkinson, joined me as we e-mailed various iPhone and iPad drawings into the 40 devices installed in the exhibition. We also had to figure out how to present, without cropping, the nine-minute reverse-projected triptych slide show. We worked with the wonderful Fondation staff and consultants as well as architect Christophe Martin who collaborates frequently with the Fondation, and Paris-based technical team Nawak & Ventilo.

Finally, despite our stress, worrying if it would all work, the show came out beautifully. *Fleurs fraîches* set an attendance record for the Fondation. And throughout summer 2011, the exhibition, re-titled *David Hockney: Me Draw on iPad*, also drew large crowds at the Louisiana Museum of Modern Art just outside Copenhagen.

In Toronto, the show will continue the exhibition's tradition of being custom designed for each venue. Meanwhile, Hockney continues to create dozens more drawings—some of which will be sent into the exhibition, adding freshness and currency, during its run at the ROM. ○

*The exhibition runs until January 1, 2012.*

**Left:**
David Hockney smoking. March 2011.

Artwork © David Hockney. Image of David Hockney at work, Charlie Scheips. David Hockney smoking © David Hockney Image. photo by Jean-Pierre Goncalves de Lima.

**Opposite:**
Hatchling snapping turtles are released into the wild. Their nest was laid on a road, so these hatchlings were moved close to the water before release to protect them from traffic.

# Turning Turtles

## How researchers are helping a "ghost" population of Ontario snapping turtles to survive

BY CHRISTINA DAVY

Photo: Leif Ericsson

# Three Ways
## the ROM is Working to Save Ontario's Turtles

### 1 HANDS-ON CONSERVATION

From a cottage dock on a small muddy lake in eastern Ontario, I spent hours as a kid watching turtles bask in the sun, sliding off their perches at the slightest disturbance. My siblings and I were entranced. We'd compete to see how close we could get, but the turtles always slipped into the water long before we got near.

For me the fascination has proved enduring. Ten years ago, I went to the Mediterranean to embark on turtle conservation work, thrilled to be travelling to a far-off place to study turtle species so different from the ones I'd grown up with. Now, after years' more research around the world, I find myself still fighting for the survival of these enchanting creatures, this time, right here in Ontario.

In 1999, a couple of years before my first summer working in the Mediterranean, news of the Asian Turtle Crisis had hit newsstands. Photographs showing thousands of turtles being harvested for a food market—many of them rare, endangered, and in some cases unknown to science—grabbed attention in the West. Since then, freshwater turtle numbers in Southeast Asia and around the world have declined drastically and continue to worsen. In 2010 Conservation International reported that at least one-third of the world's 288 turtle species, including most of those in Southeast Asia, are in imminent danger of extinction.

In Ontario, the turtle situation gets scant attention. Yet the province's eight turtle species, which represent about 3 percent of the world total, are also in crisis. Each year, hundreds of turtles are killed—by cars as they cross roads to nest, by boat propellers while swimming—and hundreds more are taken illegally from the wild to be sold into the pet or food trade. Over the last 10 years declines of more than 30 percent have occurred in some Ontario turtle populations. There are several reasons. Roads have gotten busier, and the expansion of cottage living in outlying areas has created increased food waste—which in turn has increased the number of raccoons preying on turtle eggs. Then there are the threats posed by environmental pollutants and climate change. While the speed of decline in Ontario may be slower than in Asia, the final outcome could shape up to be the same.

If we don't act quickly to slow declines, we may lose an important and iconic part of our natural heritage. These reptiles play an important role in many ecosystems. Some turtles act as scavengers that clean up carrion, while fruit- and seed-eating turtles can be important seed dispersers. Turtles are also important to many religions around the world—to many people they have great spiritual meaning.

Countless dedicated individuals and organizations are working hard here and around the world to save turtles from extinction, but given the magnitude of threats to turtles, it's a daunting task. As Dr. Russell Mittermeier, president of Conservation International, has noted, "We are on the brink of losing a group of animals that has managed to survive the upheavals of the last 200 million years, including the great extinction episode that eliminated the dinosaurs." Yet so many of us are not even aware of the important species we are losing right here in our own backyard.

#### Swamp Things in Decline

My adventures with Ontario turtles began three years ago, when I started research for a doctoral degree under the supervision of the ROM's Professor Bob Murphy, senior curator in charge of the ROM's Herpetology lab. It's proved to be quite a roller-coaster ride. Daily, I become more interested in these animals and their remarkable abilities. But the more I learn, the more concerned I am for their future survival.

In 2008 I began surveying turtles at two Ontario sites. The first, Pinery Provincial Park, was selected because seven turtle species were listed as inhabiting the park. As it turns out, only four species are still present, and one of those is close to being extirpated. The second site, Rondeau Provincial Park, has large turtle populations. The survey, funded by the Natural Sciences and Engineering Research Council (NSERC), was designed to investigate the genetic effects of population declines in Ontario's endangered and threatened turtles (see #2). But before long we realized that snapping turtles at the Pinery were teetering on the brink of disaster, and the project quickly turned into a hands-on conservation job.

From the start, I was particularly taken with the snapping turtle—a fascinating and misunderstood creature. Many people are afraid of snappers—more than once I've heard these large turtles described as "swamp monsters." Their size often gets exaggerated, but shell lengths of more than 40 cm are common. Despite their unfairly earned reputations, I find them beautiful. Their eyes are multi-hued, and the insides of their mouths are the most delicate and unexpected shade of pink. Females take immense care in choosing a good place to dig their nest and lay

**Right:** Hatchlings like these snapping turtles emerge from the nest fully formed and ready to fend for themselves—but their shells have yet to harden, leaving them vulnerable to predators.

Photo: Leif Einarson

**Right:** Spiny softshells are secretive and difficult to observe in the wild. Mature females like the one shown here are about twice the size of mature males.

Photo: Melissa Oddie

their eggs, and although they are aggressive when encountered on land, their hissing and snapping displays are actually a desperate attempt to scare off predators. In the water, snapping turtles are graceful swimmers, stretching their necks and gliding in a tranquil underwater ballet, or sitting curiously at the surface, watching the wetlands around them.

It was as I was falling madly in love with these turtles that I realized there was a problem. Although we had caught many mature adults, we had found very few juvenile snappers—at the Pinery site we didn't see a single one under the age of 10. We wondered why. A second ROM project soon led to a potential explanation. As well as collecting turtle DNA, we were also looking for nests of eggs for a ROM study on turtle paternity (see #3). By the end of the nesting season, every snapping turtle nest we had found—there were hundreds—had been plundered by raccoons. Predation was so high that at most, only a very few snapping turtle eggs could be surviving to hatch. And we seriously had to wonder if any at all were surviving.

In southern Ontario generally, predators pillage turtle nests at a fairly high rate, partly because of the large numbers of raccoons and skunks in highly developed areas that get a boost from a reliable food source—our garbage. But at the Pinery, there were virtually no turtle hatchlings. Unless the situation changed, the adult turtles, once they died, wouldn't be replaced. Biologists call this a "ghost population"; it would be only a matter of time before these snappers disappeared.

## Raising the Ghosts

Most turtles tend to be long-lived, with some species living more than 80 years. They also take years to reach maturity—in most species more than 10 years. Turtle protection plans therefore often focus on adults. At our two field sites, though, adult mortality is fairly low. The problem is the loss of eggs.

The population at the Pinery was headed for a major crash, which it might not have survived without intervention. This situation called for more than data-gathering: we needed to take action. The following spring, 2009, the ROM lab began working to help boost snapping turtle populations in the area.

From the outset, we knew that it wasn't possible to remove predators from the area, so our strategy was to physically protect the turtle eggs. Conservation initiatives require teamwork, and conserving turtles is no exception. Each spring for the last three years, a team of excellent volunteers has helped me search for nesting turtles. When we find one, we wait until she finishes laying her eggs so we don't disturb her. Choosing the perfect site to nest is the only parental care she will give her eggs. Once she finishes nesting, we carefully collect the eggs and place them in incubators onsite, where they can develop safely, out of reach of hungry raccoons.

This may sound simple, but believe me, it isn't. The temperature of incubation determines a turtle's sex in most Ontario species. To be sure we produce both males and females, multiple incubation temperatures, and therefore multiple incubators, are required. Two months after the eggs are placed in the incubator, tiny, perfectly formed snapping turtles tear their way through their leathery eggshells, ready to begin life in the wild.

Before we release the hatchlings at their original nest site, we mark each squiggling newborn on its underside with a tiny tattoo of fluorescent dye. This lets us recognize marked hatchlings as "ours" when we next meet. Originally developed to tag and track fish fry, this method had never before been used on hatchling turtles, and we weren't certain that the marks would remain visible as the turtles grew larger.

In 2009 we released more than 300 hatchling turtles, and several hundred more in 2010. Watching our hatchlings make their way down to the water and into the wild was unbelievably satisfying—but the hard work didn't end there. Evaluating how effectively our headstart program helped to increase numbers in this ghost population was the next important step. So each subsequent year we have surveyed for hatchlings in collaboration with The Friends of Pinery Park, a charitable group dedicated to preserving the park's fragile environment, and with the support of the government of Ontario. This work involves hours of searching for tiny, well-camouflaged turtles, carefully peering into pools at the water's edge and watching for small heads emerging from vegetation.

Although surveying for juveniles is taxing and at times discouraging, in 2010, we were rewarded with the discovery of five headstarted snapping turtles, fluorescently marked. Since then, our marking method has been adopted by other researchers in North America and also by a turtle conservation project in Australia.

But just as things seemed to be going well, in spring 2011 we discovered that disaster had struck at the Pinery. Over the winter, a beaver dam that had maintained water levels in the wetland where our hatchlings were released was destroyed. We don't know why, but whoever did it clearly didn't understand how important it is for wetlands to maintain a stable water level over the winter. Without the dam, a large portion of the wetland drained. Because this happened in winter when turtles (and other animals) hibernate beneath the ice, and rely on the underlying water to survive on until spring, the effect on the turtles has been devastating.

We don't know how many of last year's hatchlings were killed by the drainage, but our surveys this year have not found a single headstarted turtle. After three years of our hard work, the hundreds of tiny turtles we had released safely into the wild are likely gone. It's hard to keep going after such a discouraging incident, but we are continuing to survey and hoping for the best. Turtles are tough creatures, so perhaps a few managed to survive.

It's often frustrating and definitely not glamorous, but this is how applied conservation works. You think you have things figured out and then you're suddenly reminded that the world is far more complex and unpredictable than you might like. Luckily, the turtles at our second site are doing well. Thanks to the support of Wildlife Preservation Canada we are continuing protection of at-risk turtle nests at Rondeau, hoping that it will be spared a similar fate.

Despite the Pinery Park disaster, we are still hopeful that our headstart program for baby turtles will be a boon to the other turtle populations we are protecting, but ultimate success depends on the hatchlings' ability to avoid the myriad other threats to their survival. It will take time to collect enough data to evaluate the effects of our work, but we do know now that our headstarted turtles can successfully overwinter and that our new marking method works. We hope to meet our ultimate goal over the next decade—to track the reproductive success of headstarted turtles.

As one of the most endangered groups of vertebrates in the world, turtles still face a bleak outlook. But with a combination of new technology, molecular methods, and good old-fashioned hard work, we can reduce some of the pressures here in Ontario on both adult and juvenile turtles. One thing is certain: it will take a great deal of money, effort, creativity, and cooperation if we are to save these 200-million-year-old creatures.

## 2 GENETIC RESEARCH

Thanks to Advanced DNA Research, the ROM Lab Could Soon Be Helping Turtles Find Their Way Home

Early each spring an incredible phenomenon unfolds across southern Ontario. Responding to the shifting season, small black turtles about the size of a teacup marked with bright yellow spots stir in the icy water and emerge from hibernation. The endangered spotted turtle (*Clemmys guttata*) is the province's most cold-tolerant turtle species and the first to emerge after the winter, pulling itself out of the icy water to bask in the first rays of spring sunshine. With a lifespan surpassing that of the average human, these turtles are active at temperatures that leave most reptiles barely able to move. The spotted turtle is also one of Ontario's rarest turtles, seldom seen by people.

A little later in the spring, other species begin to emerge, including the bizarrely shaped spiny softshell turtle, which grows to about the size of a car's hub cap. These large, tan-coloured turtles with brown or olive-coloured blotches and spots on their shells come by their name honestly—their flat, pancake-like shells are rubbery and flexible, completely unlike the hard shells of other Ontario turtles. Softshells are agile swimmers and skilled hunters, able to catch fast-swimming fish with a lightning strike of their snake-like necks. But despite their amazing abilities, the spotted turtle and the spiny softshell turtle are two of the species slowly disappearing from our landscape.

A protective shell, a long lifespan, and an ability to tolerate a range of extreme physiological challenges are just some of the characteristics that make turtles such a succesful and interesting group. But these adaptations are not enough to prepare Ontario turtles for the challenges they now face. Conversion of wetlands to agriculture and urban land has significantly reduced available turtle habitat, which is further fragmented by thousands of kilometres of highway. As a result, spotted turtle and spiny softshell turtle populations in the province are isolated from one another, confined to tiny islands of threatened turtle habitat in a vast sea of developed land.

**Left:** Sterile syringes are used to take small blood samples like the one being taken from this spotted turtle. The turtle is then released, and the blood is used for DNA analysis.

**Far left:** Full-grown snapping turtles are the stuff of Ontario folk legend, but their apparent aggression when encountered on land is really just a defensive strategy.

Photos: Author with snapping turtle, Melissa Oddie. Blood-sampling, André Ngo

## Ontario Turtle Fact Sheet

Status for the turtles listed here is the status determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as of spring 2011. Three of these species are being re-assessed this year, so the listing may soon change. COSEWIC assesses the status of species at risk based on the immediacy of the threats they face. Species are classified as Endangered if they are likely to become extinct or extirpated (locally extinct) in the near future. Threatened species are those likely to become Endangered in the near future, and species of Special Concern are those that are not yet Threatened or Endangered, but are likely to become so in the near future based on their biology and the threats they face.

**Painted Turtle**
***Chrysemys picta***
Painted turtles are still relatively common and are the most frequently observed turtle in Ontario. They have not yet been assessed by COSEWIC and are not currently thought to be of conservation concern. They do, however, share the same characteristics that render Ontario's other turtle species vulnerable to human impacts.

**Snapping Turtle**
***Chelydra serpentina***
Listed as a species of special concern, snapping turtles are still widespread in Ontario but are particularly vulnerable to road mortality and over-hunting.

**Spiny Softshell**
***Apalone spinifera***
Spiny softshells are considered threatened, and in Ontario they are restricted to small remnant populations in the southwestern part of the province. They are targeted by poachers for sale in the food trade.

**Blandings Turtle**
***Emydoidea blandingii***
In Ontario, Blandings turtles are listed as threatened. Their biggest threats are habitat loss, road mortality, and illegal collection.

**Spotted Turtle**
***Clemmys guttata***
Spotted turtles are endangered and are restricted to very small, fragmented populations that are no longer connected to one another. Threats to spotted turtles include habitat loss and illegal collection for the pet trade.

**Eastern Musk Turtle**
***Sternotherus odoratus***
Also known as the stinkpot because of the musky odour they secrete when disturbed, musk turtles are a threatened species.

**Northern Map Turtle**
***Graptemys geographica***
Map turtles are listed as a species of special concern.

**Wood Turtle**
***Glyptemys insculpta***
Wood turtles are threatened. Like spotted turtles they are targeted by illegal collectors for sale in the pet trade.

### Fact Tidbit

When turtle eggs are incubating, warmer incubation temperatures (for example, 30°C) tend to produce females, while cooler temperatures (26°C) produce males. Nests between those temperatures produce a mix. So the mother turtle's choice of nest site determines the sex of her hatchlings.

**Right:** A fluorescent pink mark on the plastron of this snapping turtle identifies it as a head-started turtle from 2009.

Photos: Spotted turtle and hatching eggs, Christina Davy. Fluorescently marked snapping turtle, Amy Whitear. Painted turtle, W. A. Crich. Spiny softshell, wildlife slides. Eastern musk turtle, James Kamstra. Wood turtle and Northern map turtle, John Mitchell.

In Ontario, too, poachers illegally collect and sell turtles to the food and pet trades.

All animal species depend on genetic variation to adapt to changes in their environment, and small populations lose their genetic variation more quickly than large ones, making them particularly vulnerable to random events such as changing climatic conditions or emerging diseases. The loss of each adult from a small turtle population has a massive effect on the population's ability to persist. For this same reason, poaching hits small populations of turtles particularly hard.

It's not just in Asia that turtles are being poached. In Ontario, too, poachers illegally collect and sell turtles to the food and pet trades. It's difficult to estimate how many are poached each year, but the number is likely to be far above sustainable limits. Every year, illegally collected adults of both the endangered spotted turtle and the threatened spiny softshell turtle are seized by conservation officers, often thanks to tips from the public.

Eating a turtle is no different from eating any other animal, and many cultures have a long tradition of consuming turtle meat. The problem arises when turtle populations are in decline and simply cannot sustain the continuous removal of adults. In Ontario it is not legal to collect turtles without a permit, though this doesn't stop poachers. (The exception is the snapping turtle, which is still listed as a game species and can be legally harvested despite its recent addition to Canada's *Species at Risk Act*.)

Sometimes turtles are already dead when they're confiscated, but many are still alive and healthy. If these turtles could be returned to the wild, they would continue to contribute to the population. But unless it is known where they were collected, the turtles cannot be released. Wild turtles survive by knowing where to find food, mates, safe cover, and a good hibernation site, and they learn to find these during their first few years of life. If they are moved to a new and unfamiliar area, they may not be able to find everything they need to survive. (By the same token, a wild turtle should never be moved from one place to another, nor should a pet turtle ever be released into the wild.)

Unless we know where a turtle was taken from (and are sure it is free from diseases that can be picked up in captivity), a confiscated turtle may spend the rest of its life in confinement. And with each turtle being so important to the survival of a declining population, this outcome is tragic. Think of it this way—an adult female turtle can have a reproductive life of more than 50 years. If she is removed from the population, all the offspring she might have produced in the rest of her life are also lost.

This problem became the inspiration for my doctoral studies. What if DNA from Ontario turtles could be used to reliably identify which population a turtle was taken from? It would mean that confiscated turtles could be returned to the wild, and we could undo some of the damage caused by poaching. Thanks to the generous support of Wildlife Preservation Trust Canada and the National Science and Engineering Research Council of Ontario, we will eventually be able to do exactly that.

Modern genetic analyses allow scientists to identify not just individual animals but specific populations (or communities) of animals. If populations have been separated from each other for long enough, usually several generations, they begin to develop a unique genetic signature.

Because our remaining spotted turtle and spiny softshell turtle populations are thought to be isolated from one another, they may have already developed distinct genetic signatures. Once these genetic signatures are known, a method called an assignment test can be used to find out which population a specific turtle was taken from.

The first step in developing assignment tests is determining the genetic signature of local turtle populations. For this purpose, over the past two summers, with the generous assistance of a number of other Ontario turtle researchers and an amazing team of volunteer field assistants, I have travelled to swamps, streams, and ponds around southern Ontario, wading through wetlands to collect DNA from populations of spotted turtles, spiny softshells, and snapping turtles. To collect the DNA we take a small blood sample from a vein in the tail—a rapid and harmless procedure. Then we take the samples back to the ROM.

In the lab, I have been using molecular data called microsatellite DNA to look for distinct genetic patterns or signatures for each population. Once we have genetically identified each population, we will be able to determine, by means of a simple blood test, a confiscated turtle's source population and return it to its home territory, where it can safely be released back into the wild.

## 3 STUDY OF MULTIPLE PATERNITIES

Who's Your Daddy? The ROM Herpetology lab is finding out ...

"Multiple paternities" refers to a phenomenon in which a female's offspring are sired by more than one male. Taking turtles as an example, a nest with multiple paternities would contain some eggs fathered by one male, some fathered by another, and potentially eggs fathered by even a third or fourth male. All the offspring share a mother, but they may be full or half-siblings. Multiple paternities are common among turtles and other reptiles, but we don't yet understand exactly how this phenomenon works. While the evolutionary benefit to the males is obvious (they father more offspring than they would if each female mates only with one male), the benefit to females isn't as clear.

What do multiple paternities have to do with turtle conservation? Well, there are a few ways in which it can benefit a population. First, female turtles can actually store sperm for an extended period of time (several years in some cases) before using it. If a female mates with multiple males and stores their sperm, she will be able to lay fertile eggs every year, even in years where she has trouble finding mates. In addition, if something happens to a male she has mated with (for example, if he gets hit by a car), he can still contribute to the population.

The flip side of this scenario is less encouraging, however. Because multiply mated females are carrying the genetic material of several males, they act as genetic storehouses for their populations. This renders each mature female even more precious, and makes it even more important to protect them. If you take a multiply mated female out of a population, you are removing not only her genetic material but also that of the males she has mated with (unless they are still alive or have mated with other females that are storing their sperm).

With the ROM Herpetology lab, I am studying multiple paternities in two Ontario turtles—the snapping turtle and the spiny softshell. I recently co-authored a paper with the ROM's Professor Bob Murphy and a group of American tortoise researchers detailing multiple paternities in the threatened Agassiz's desert tortoise, which lives in the Mojave Desert in the southwestern United States, and we are excited to compare those results to some freshwater turtle studies. By examining paternity patterns, we can ask whether some males are more successful (who gets to be the daddy?), and whether the specific mating system of different turtle species affects their paternity patterns. o

# Top of the Class

## Score the best back-to-school gear

BY DENISE DIAS

**September is one of the busiest times** of year with the hectic back-to-school season. People of all ages are in the mood to learn something new, sharpen skills, and discover hidden talents. Come to the ROM this season to see the new blockbuster exhibition, *Maya: Secrets of Their Ancient World*, visit the new galleries, hear fascinating lectures and debates, or taste fresh flavours at c5 Restaurant Lounge.

Don't forget to do your homework and study new items hitting ROM store shelves throughout the fall, including a stylish selection of furniture, limited-edition artwork, trendy stationery, and chic jewellery. o

---

**DENISE DIAS** is a senior writer for the ROM Governors. She is the author of the ROM's new children's book *Burton and Isabelle Pipistrelle: Out of the Bat Cave*.

4

**4. GO FISHING GAME**
A fun *Take 'N' Play Anywhere*™ game that will entertain students on those long afternoon bus rides. **$14.99. ROM Member price $13.50.**
**Why we love it!** The big magnetic playing pieces are easy for kids to use and hard for them to lose

5

**5. WIND-UP ROBOT**
Adorn a creative kid's study desk with this inventive wind-up robot made of brass and copper.
**$19.99. ROM Member price $17.99.**
**Why we love it!** It's a beautiful collector's item designed by Chico Bicalho

6

**6. SMENCILS**
Get a whiff of this! These non-toxic scented pencils come in yummy aromas like tropical blast, very berry, and cotton candy. **$1.99 each. ROM Member price $1.80.**
**Why we love them!** They smell delicious and are made from 100% recycled newspapers

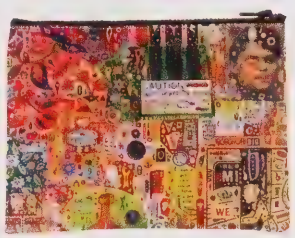
7

**7. DINOSAUR CHOPSTICKS**
Plant a colourful surprise in your child's lunch box! These chopsticks are sure to be a big hit among a sea of sandwiches in the school cafeteria. **$2.99 each. ROM Member price $2.70 each.**
**Why we love them!** They're a cute and kid-friendly way to eat sushi, rice, or noodles

8

**8. T-REX T-SHIRT**
Remind your kids of memorable summer moments at the ROM with this graphic tee. **$17.99. ROM Member price $16.20.**
**Why we love it!** Made of 100% cotton it's perfect for layering under fall cardigans and lightweight sweaters.

1



**1. PENCIL POUCH**
A creative case large enough to hold several pencils, pens, crayons, and a few passed notes. **$7.99. ROM Member price $7.19.**
**Why we love it!** It's woven from 95% post-consumer material, and a portion of proceeds from the sale of this pouch supports The Nature Conservancy

2

**2. PICTURE BOOKS**
Inspire a life-long love of learning by building a library for your little ones. Feed their curiosity and imagination with a wide selection of educational and award-winning titles from our bookshelves. **$17.95 to $19.99 each. ROM Member price $16.16 to $17.99 each.**
**Why we love them!** Choose a perfect story for recess, after-school, or bedtime reading.

3

**3. ROM BACKPACK**
Help your kids shoulder a brand new book load with this versatile black backpack. **$40. ROM Member price $36.**
**Why we love it!** It folds and zips into a compact bag for easy storage.

**Members' Shopping Weekend**
A special 20% discount for 3 days only. See page 42 for details.

All items listed on this page are available at the **ROM Museum Store**.

**Store Hours:** 10 am to 6:30 pm, except Friday 10 am to 9 pm.
**Kids Store:** Monday to Sunday, 10 am to 5 pm, except Friday 10 am to 9 pm. Check out our online boutique at **store.rom.on.ca**.

# Burton and Isabelle Pipistrelle

## Echo-locating Mysterious Worlds

BY GLEN ELLIS

**"And the tiniest of them all was a bat named Burton . . ."**

The St. Clair Cave, a subterranean river grotto in southeast Jamaica, is home to half of the island's 20 bat species. The ROM's recently revamped Bat Cave is modelled on the Jamaican cavern, which is reproduced so accurately—replicated, it seems—that ROM visitors familiar with St. Clair quickly get their bearings.

The ROM's Bat Cave has always been a popular destination for Museum visitors. For children camping overnight, the cave enhances the mystery of a "night at the museum," when the crowds have gone home, the house lights are down, and only security guards wander the precincts of antiquity.

It is said that the shade of Charles T. Currelly, first director of the Royal Ontario Museum of Archaeology, floats in periodically, keeping an eye on things. The new Bat Cave likely meets with his nocturnal approval.

In connection with this enhanced attraction, Royal Ontario Museum Press is publishing its first children's book, *Burton and Isabelle Pipistrelle: Out of the Bat Cave*, a fanciful tale of two pipistrelle bats. The word "pipistrelle" derives from the Greek *hesperos* (evening star), the rising of which coincides with that of bats. Pipistrelles are among the smallest of bats and Burton is the smallest of the pipistrelles.

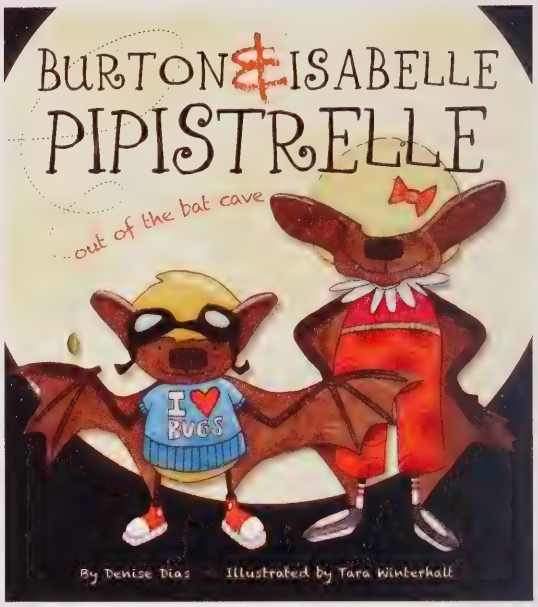
Denise Dias, a senior writer with the ROM Governors, originated the concept and wrote the text. The illustrations are by Tara Winterhalt, graphic artist and principal designer at ROM Press.

Burton and Isabelle Pipistrelle live in the ROM's Bat Cave. One night, Burton, a born explorer, decides not to follow the colony in the nightly forage for insects but instead to investigate a small opening in the cave that leads to another world, the Museum at night. So while his bat buddies are zipping and zooming over Philosophers' Walk, gorging on mosquitoes, moths, beetles, and fireflies, Burton looks to food for thought as he goes on a journey through time and around the world, encountering, among other things, dinos from 65 million years ago roaming the halls.

The night is so filled with escapades, poor Burton forgets all about time. And then dawn breaks! Rays of sunlight begin to find their way into his sublunar, solarphobic world. Burton panics. He wishes that he were snug in his cave, sleeping upside down with the other bats, their fat little bellies full of bugs, their dreams entomological. Where is big sister, Isabelle, the all-knowing and wise one? Will Burton make it back to the cave? And if so, how? And when? If you're 3 to 7 years old, it's a nail biter.

ROM mammalogist Dr. Burton Lim, a specialist in bats, is the book's scientific consultant. He has graciously loaned his name to the story's male lead. Dr. Lim also appears, in a stylized version, on the last page, with his selection of amazing bat facts.

Award-winning children's book authors and illustrators Sean Cassidy and Loris Lesynski served as story consultants, providing valuable input. The Museum intends the book to be the first of a series. It is also a strong candidate for animation.




*Burton and Isabelle Pipistrelle: Out of the Bat Cave* is available in the ROM Museum Store, bookstores, and online. Published by Royal Ontario Museum Press, hardcover, $19.99.

This fall, the ROM will feature a host of programs relating to the book (see sidebar). *Burton and Isabelle Pipistrelle* will also be prominent in the ROM Museum Store and at Word on the Street (Toronto), September 25, 2011. This year, the ROM Press booth is situated just outside the Museum's Queen's Park entrance. The Press will be supporting the publication through incentive discounts to the retail book trade and a variety of promotional items, including large (3′ x 2′) cover posters, available at Word on the Street, featuring Winterhalt's vibrant, whimsical art.

Children will quickly identify with the wide-eyed pipistrelle: "I see Burton in the faces of children at the ROM every day," remarks Dias. "They fly through the doors ready for adventure, with an excitement that is completely contagious. I hope that children reading the book will experience the ROM, through Burton's eyes, as a thrilling place full of adventure and possibility, a truly magical place." o

**GLEN ELLIS** is head of Royal Ontario Museum Press and executive editor of *ROM* magazine.

Burton found a quiet gallery that was filled with glittery ball gowns, delicate gloves, and fine silk dresses displayed next to bright puffy jackets and embroidered suits.
He dove into the sleeve of soft coat and pretended to be a powerful prince. He wrapped himself in a heavy purple dress and imagined he was swimming in an ocean of grape juice. He curled up inside a lace glove and thought he was trapped in a spider's web!

Illustrations by Tara Winterhalt. Photo by Wanda Dobrowlanski

Illustrator Tara Winterhalt and author Denise Dias review the book proofs.

## BOOK FOR

*Burton and Isabelle Pipistrelle: Out of the Bat Cave*, the new children's book from ROM Press, at these exciting events and programs this fall!

**Official Book Launch**
**Friday, September 23**
7:30 PM – 8:30 PM
**Royal Ontario Museum**
Open to the public; curious children welcome!

**Word on the Street**
**Sunday, September 25**
11 AM – 6 PM
**Queen's Park**
Look for the ROM Press booth near the Museum, on Queen's Park.

**Reading & Signing at the ROM Store**
**Saturday, October 15**
1 PM and 3 PM
**Saturday, October 29**
1 PM
**Sunday, October 30**
3 PM
Visit the ROM Museum Store for a special reading event and pick up a T-shirt just like Burton's!

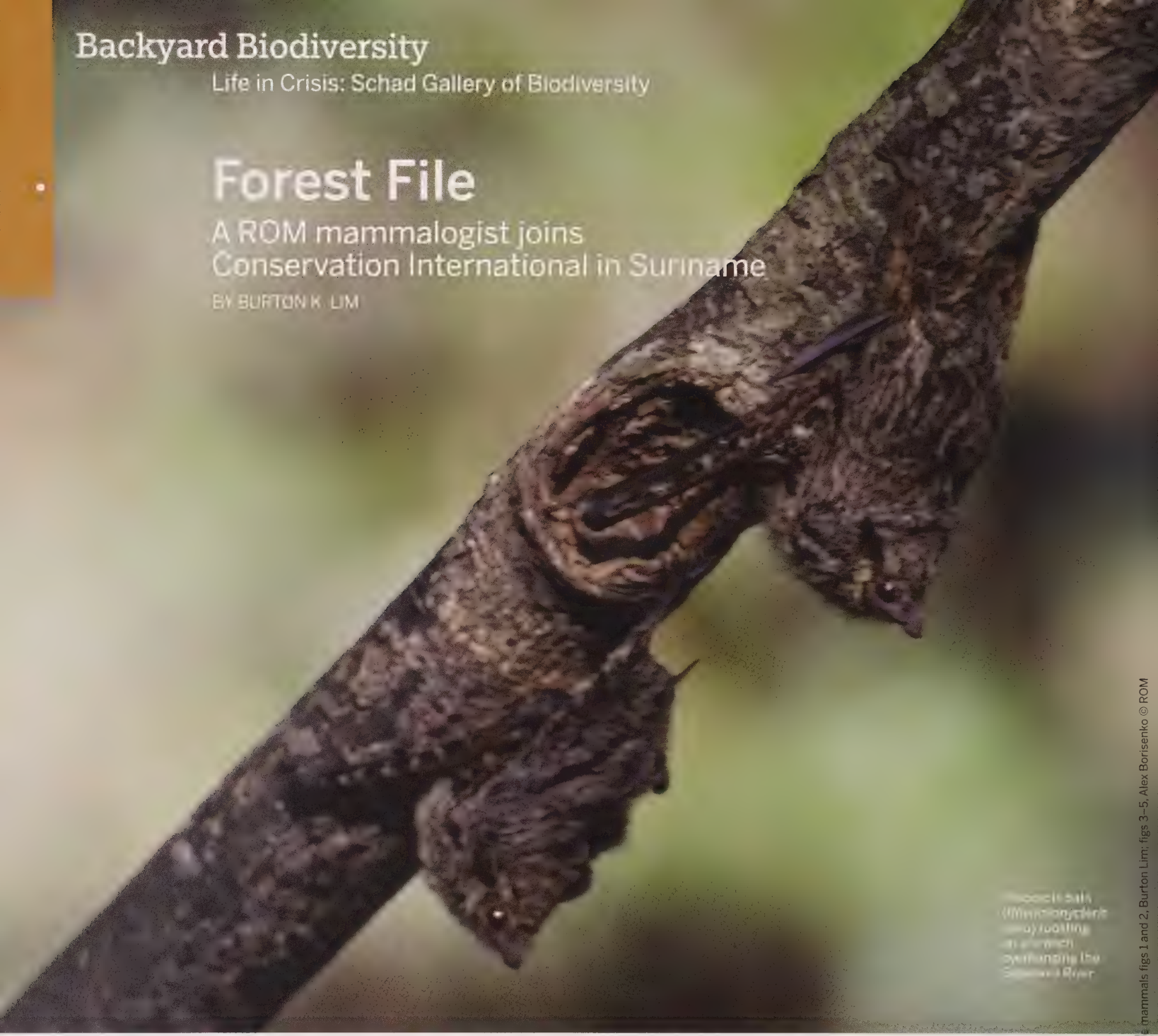
**Spirit Tales**
**Saturday, October 29**
10 AM – 1 PM
**Royal Ontario Museum**
RPC/YPC/Currelly Society members and guests are invited to enjoy Halloween treats, crafts, and a special reading with the author and illustrator.

**Halloween at the ROM**
**Sunday, October 30**
11 AM – 4 PM
**Royal Ontario Museum**
Get in the spooky spirit with a full day of Halloween arts and crafts, ghoulish activities, live bats, and creepy crawlers—plus, learn amazing bat facts from Burton Lim, assistant curator of Mammalogy at the ROM, and meet the author and illustrator of *Burton and Isabelle Pipistrelle*!

# Forest File

## A ROM mammalogist joins Conservation International in Suriname

BY BURTON K. LIM



**Eleven years ago in the remote south of Suriname,** an important petroglyph site was discovered in the unspoiled tropical forests near the village of Kwamalasamutu. The native Trio Amerindians—who discovered the 5,000-year-old rock carvings at Werehpai Cave accidently when a hunting dog went astray—are planning to develop eco-tourism around the site. This will be a boon for the local economy. But these forests are also home to an exceptionally biodiverse flora and fauna—a vast repository of more than half the species found in the country. When ROM biologists heard about the plans for eco-tourism, what leapt to mind was how it would affect this pristine environment.

Conservation International (CI), a non-governmental organization concerned with preserving both biodiversity and indigenous lifestyles, also wanted to know. And they were willing to do the testing to find out. I was one of 33 biologists and students that CI invited to visit Kwamalasamutu in August and September 2010 to conduct a Rapid Assessment Program (RAP) survey—a snapshot documentation of the region's wildlife. Traditional surveys tend to be long-term projects that inventory all species in one particular discipline in an area over many years. RAP is an alternative method: a short intensive survey is conducted by many specialists from various disciplines to estimate overall species diversity. Extrapolation from baseline data enables the final conclusions to be published rapidly, within a year.

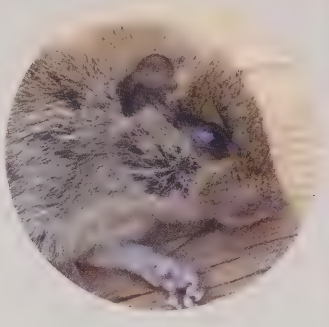
Roosting bat and river crossing. Burton Lim. Petroglyph site. © Frans Lemmens. Rare mammals figs 1 and 2, Burton Lim; figs 3–5, Alex Borisenko © ROM

**Right:** RAP survey team crossing a creek to get around rapids on the Kutari River.

Werehpai Cave, the ancient petroglyph site near Kwamalasamutu around which eco-tourism is being developed.

# The Rarest Small Mammals in Suriname

*fig. 1*



Even for the better known animal groups such as mammals, the answer to a question as basic as how many species there are in Suriname continues to change as biologists conduct more fieldwork in unexplored areas. In addition to the two species of rats documented for the first time on the 2010 RAP survey, I recorded four new species of bats during an environmental assessment five years ago in the western part of the country. The "rarity" of these species, though, may be more apparent than real—it may be due to the fact that they live in places that are difficult to survey such as aquatic habitats and in or above the forest canopy. With that in mind, these five species appear to be among the rarest small mammals in Suriname:

**1. Guianan brush-tailed rat.** Lives primarily in trees but can also be found foraging on the ground.

**2. White-winged vampire bat.** Roosts in tree hollows and feeds exclusively on bird blood.

**3. Smoky sheath-tailed bat.** Hangs under the fronds of coconut trees and flies in open areas above the canopy or in forest gaps.

**4. Amazonian sac-winged bat.** Two wavy stripes on its back act as camouflage on tree bark, where it roosts.

**5. Greater red bat.** Unlike most species of bats, it usually gives birth to twins. Its roosting site is unknown but it probably hangs from foliage or branches in trees.

*fig. 2*

*fig. 3*

*fig. 4*

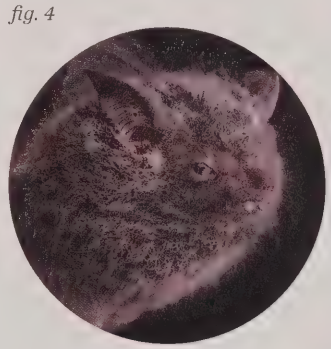


*fig. 5*

### In the Field

Disparagingly described by one of my students as "an intense one-month struggle against mud and bugs," fieldwork is the key first step in surveying. The RAP team spent 21 days collecting data. My expertise is in small mammals, so I was looking for bats, rats, and opossums. The ROM team collected 251 specimens representing about 40 species, which document the diversity at Kwamalasamutu at that specific time. The findings will be used to establish a baseline against which future surveys can be compared, and in this way any changes to the environment can be documented. At the ROM, we will also incorporate our findings into ongoing research in Suriname and in neighbouring Guyana.

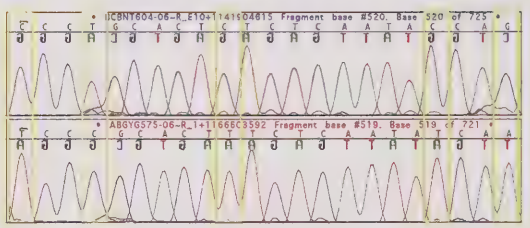
### What's Written in the Bones

Among the collected specimens were two unusual rats that caught my attention. Examining tiny details in bones is one way to identify a species, and I was eager to inspect the skulls of these two rats. After a preliminary examination, I was able to confirm that one rat belonged to the genus known as the fish-eating rats (*Neusticomys*) and the other to the brush-tailed rats (*Isothrix*)—neither of which has been documented in Suriname before. Species in the fish-eating and brush-tailed genera are secretive denizens of the night, and they are poorly known in part because they live in habitats that are difficult to sample, such as creeks and forest canopy.

For these two rats, the number of teeth and the shape of the skulls were different from what I was expecting, based on species of fish-eating and brush-tailed rats found in other countries in northern South America. So I was unable to identify the exact species. I'm hoping that a more detailed comparative study with other museum specimens will provide answers.

**IN THE BUG ROOM**

My first task after the small mammal collection from Suriname was exported to Canada was to have the skeletons cleaned so that I could examine the bones. Jim Borack, a technician in the ROM's mammal prep lab for 45 years, had always looked after the bug room—the enclosed metal room where a colony of dermestid beetles eats the flesh off carcasses. Unfortunately, my return from the field coincided with Borack's retirement and he had not yet been replaced, so I was left to prepare some of the material myself. Luckily for me, the beetle populations, which included all four life stages—egg, larva, pupa, and adult—were quite healthy. The colony was doing well, and was able to deflesh the choicest and tastiest specimens in a day. The entire Suriname collection was cleaned within a month.



**Left:** Two barcode sequences of bats colour-coded for the four different DNA nucleotides to identify differences (boxed in yellow).

### Barcode Scanning

Another very useful method for identifying species is the relatively new tool of DNA barcoding (see *ROM* magazine, Spring 2009). Established by an international collaboration of scientists, this system aims to identify all living species based on a standard section of their DNA. (The guiding principle is that there is less genetic variation within a species than among different species.) But it's not quite as simple as scanning a product at the supermarket. When we have an unidentified specimen, we can compare its DNA barcode with an online reference database of barcodes for known species and find the closest match. If the barcode matches one online, we know what our species is. If there is nothing similar online, then the species is either a new addition to the database or a species new to science. But since there is always some variation within species, a taxonomic expert is still needed to confirm the specimen's identity and to assign a scientific name if it is a new species.

Jacqueline Miller, a PhD student who is using genetic techniques to study the evolution of vocalization in mice (see *ROM* magazine, Summer/Fall 2005), sequenced the DNA from my Suriname specimens in the ROM's Laboratory of Molecular Systematics.

### Analysis

Now that I have all the data in hand, I'm in the process of analyzing and interpreting it. The lack of comprehensive comparative material of fish-eating and brush-tailed rats makes identifying these two rodents a little more challenging than usual and the process is still underway.

The presence of uncommon species in an area tends to be a good indicator that a habitat is pristine. As we suspected, the Trio Amerindians are sharing the forests of Suriname with a huge diversity of mammals and other organisms in an unspoiled tropical paradise. Already Conservation International has developed recommendations to ensure that the Trio people's fishing and hunting practices are sustainable; CI is also promoting the idea of making tourism eco-friendly around the village of Kwamalasamutu and the historical petroglyph site at Werehpai Cave. In a few years, when the eco-tourism project has been fully implemented, we may be able to return for a follow-up survey of local wildlife. This will be the real test of how sustainable this development is, and whether the conservation measures already implemented by CI need to be modified to continue to preserve Suriname's natural environments and human heritage. o

DNA image created by Burton Lim

# FOR OUR members

The latest offers and information

**NEWS** / EVENTS / SUPPORT / **PROGRAMS** / TRAVEL / SPONSORSHIP

**ROM MEMBERS' MESSAGE**

## *Looking Forward to Dinosaurs*

### And Much More in the Coming Months

**What an incredible summer we've had at the ROM.** We unveiled four new galleries—the Eaton Gallery of Rome, including the Bratty Exhibit of Etruria; the Joey and Toby Tanenbaum Gallery of Byzantium; the Joey and Toby Tanenbaum Gallery of Rome and the Near East; and the Galleries of Africa: Nubia—and we launched the exhibition *Bollywood Cinema Showcards: Indian Film Art from the 1950s to the 1980s*! If you have not had a chance to see the Bollywood show, you still have until October 2 to fit in a visit. The Rome, Byzantium, and Nubia suite of galleries is just next door, so it's easy to see them all in one visit.

Thanks to all those Members who attended the Member Previews over the past few months. We have had great feedback on these events and look forward to making them even better and more informative in the future.

At the ROM, we want to ensure that every time you visit us you have the best possible experience. I encourage you to visit **rom.on.ca/members/visiting_tips.php** to refresh your memory of the ROM's bag policy and other important topics, especially if you are coming with small children and have large bags and strollers.

If you are starting to think about holiday gifts, remember that ROM Family/Dual membership provides two adults and four children entrance to the Museum's permanent galleries and blockbuster exhibitions free of charge. It's a great gift for grandparents looking for new ways to spend time with the family and offers a savings for friends over the cost of two memberships! With *The Great Southern Dinosaurs* coming next summer, I'm sure the kids will want to visit with anyone who will bring them to see the biggest dinosaurs that ever lived.

Keep an eye on the ROM Members' eNewsletter for lots of interesting and exciting events happening through the fall.

Cheers,

Martha Henderson

**MARTHA HENDERSON**
HEAD, MEMBERSHIP AND SALES

The Joey and Toby Tanenbaum Gallery of Byzantium.

## MEMBER PREVIEW

EXCLUSIVELY FOR ROM MEMBERS
**BE AMONG THE FIRST TO VISIT *MAYA: SECRETS OF THEIR ANCIENT WORLD.***
November 18, 2011
No registration required.
For more information: **rom.on.ca/whatson** or 416.586.5700.
See page 40 for details.

## MEMBER INFORMATION

**MUSEUM MEMBERSHIP RATES**
**Individual:** 1 year $97; 2 years $172
**Family/Dual:** 1 year $149; 2 years $269
**Non-Resident:** 1 year $102; 2 years $183
**Student:** $54
**Explorers' Club:** $15 (in addition to ROM Membership)
**Curators' Circle:** $189
**Museum Circle:** $323
**Director's Circle:** $626
**Young Patrons' Circle:** $600+
**Royal Patrons' Circle:** $1,500+

**TELEPHONE NUMBERS**
**Membership Services:** 416.586.5700
**Switchboard:** 416.586.8000
**RPC and YPC:** 416.586.5842
**Bell Relay Service:** 711
**School Groups:** 416.586.5801
**Museum Volunteers:** 416.586.5513
**ROM Museum Store:** 416.586.5766
**c5 Restaurant/Lounge Members Reservation Line:** 416.586.8095
**Donations:** 416.586.5660

**Membership:**
416.586.5700
membership@rom.on.ca
rom.on.ca/members

**Attention Members:** Your privacy is important to us. The Royal Ontario Museum (ROM) and the ROM Governors (the ROM's charitable foundation) share a special relationship and you may receive additional information from each. If you do not wish to receive it, contact membership@rom.on.ca or call 416.586.5700.

Occasionally, we make our list of supporters available to other carefully screened cultural organizations and selected groups that may be of interest to you. Please understand that by allowing us to exchange your name, you are helping us support the ROM's education and research mandates. If you prefer not to have your name exchanged, please contact us at membership@rom.on.ca or at 416.586.5700.

The ROM Membership Department operates a telemarketing office. Should you prefer not to be contacted by telephone, please contact us at the e-mail address or phone number listed above and we will have your number removed from our list.

Incense burner stand of sun god, Palenque, Mexico. Classic period, 250–900 CE. Alberto Ruz Lhuillier Museum. Inventory number 10-629762. Photo © CONACULTA-INAH. Javier Hinojosa

**NEWS**

## *ROM Explorers' Club Event*

EXCLUSIVELY FOR EXPLORERS' CLUB MEMBERS

**Saturday, October 15, 2011, 10 am to 2 pm**

Bring your Explorers for an exciting event filled with fun crafts and activities. Parental supervision is required for this free event.

Registration is required: **rom.on.ca/explorers** or 416.586.5700.

*Want to become an Explorer?*

This fun club for children ages 4 to 11 offers a stampable passport, cool events, must-read newsletters, and more. Available to ROM Members only. Cost: $15 per child per year. For details, visit **rom.on.ca/explorers** or call 416.586.5700.

## *Special Member Offers*

### Gardiner Museum

**2-for-1 admission for ROM Members**

Present your valid ROM membership card at the Gardiner's admission desk to receive 2-for-1 admission plus a 10% discount at the Gardiner Shop.

### Sony Centre

**Save 20% on tickets to BHARATI**
**On stage from October 27 to November 6 only!**

This live music and dance spectacle takes viewers on a journey through the colours, scents, and flavours of India. Dazzling and sensual, *Bharati* is a powerful story of love, homecoming, and identity. The production features 1,000 costumes and 70 dancers, musicians, and acrobats live on stage. Don't miss out on this exclusive engagement! Buy tickets online at ticketmaster.ca/Bharati-tickets/artist/1550219 or call 1.800.872.SONY. Enter promo code BHROM11 in the "Promotions and Special Offers" box.

## *Reciprocal Days*

This fall, ROM Members are invited to attend free days at three of Ontario's cultural organizations.

### McMichael Canadian Art Collection

**Saturday, November 26, 2011**

For one day only, Saturday, November 26, 2011, ROM Members can enjoy a day of art, architecture, and landscape for free. Complimentary admission includes the McMichael's renowned permanent collection, special exhibitions, recently enhanced grounds, and the new outdoor Sculpture Garden featuring nine monumental bronze sculptures.

To take advantage of this special offer, simply present your membership card(s) at the gallery. For more information, please contact the McMichael Canadian Art Collection at 905.893.1121 ext 2207 or visit the gallery online at mcmichael.com.

Please note that no guest privileges apply, and there is a $5 parking fee.

McMichael

### The Gardiner Museum of Ceramic Art

**Saturday, October 15, and Sunday, October 16, 2011**

On October 15 and 16, 2011, ROM Members are invited to the Gardiner Museum of Ceramic Art to participate in the Gardiner's Member for a Day Program. Take advantage of great membership benefits including free admission to the permanent galleries and the exhibition *The Tsar's Cabinet: Two Hundred Years of Russian Decorative Arts Under the Romanovs*, a 10% shop discount, and a 15% clay class discount. And bring the kids! On Sunday, there will be free children's activities. Simply present your ROM membership card and ID—and enjoy.

*The Tsar's Cabinet* was developed by the Muscarelle Museum of Art at the College of William and Mary, and tour organized by International Arts and Artists, Washington, DC.

### Art Gallery of Ontario

**Saturday, November 5, and Sunday, November 6, 2011**

ROM Members are invited to enjoy free admission to the Art Gallery of Ontario for one weekend only. Complimentary admission includes the AGO's permanent collection, free coat check, access to the Norma Ridley Members' Lounge, and member discounts in the AGO restaurant, café, and shop. A ROM membership card and ID must be presented upon arrival to take advantage of this special offer. For more information, please contact the Art Gallery of Ontario membership office at 416.979.6620.

AGO Art Gallery of Ontario
Musée des beaux-arts de l'Ontario

## *Member Preview*

### Maya: Secrets of Their Ancient World

**November 18, 2011, 10 am to 8:30 pm**

ROM Members are invited to an exclusive preview of this striking exhibition that takes you on a remarkable journey through the ancient world of the Maya. In collaboration with Mexico's National Institute of Anthropology and History (INAH), the ROM and the Canadian Museum of Civilization bring together a collection of some 250 artifacts, many never before seen in Canada.

The preview is free and exclusively for ROM Members. No registration is required. For further information: **rom.on.ca/whatson** or 416.586.5700.

## *Free General Admission to Six Canadian Museums and Art Galleries*

**The ROM has recently signed a reciprocal agreement** with the Art Gallery of Nova Scotia. That brings to six the number of cultural organizations to which ROM Members now enjoy free general admission: Art Gallery of Nova Scotia, Glenbow Museum, Kamloops Art Gallery, McCord Museum of Canadian History, Montreal Museum of Fine Arts, and Vancouver Art Gallery. Valid ROM membership card(s) and ID must be presented upon arrival. Admission may not include guests, entrance to blockbuster exhibitions, or ticketed programs and events.

Durnuvo jewel casket, Firm of Ovchinnikov, Russia, c. 1889. Tripod bowl depicting a man on a throne, ceramic, Late Classic period (600–900 CE), Yucátan Peninsula, Mexico. Museo Regional de Yucatán Palacio Cantón. 10-569857; photo by Jorge Vertiz.

## *Museum of Inuit Art 2-for-1 Admission*

**ROM Members receive 2-for-1 admission at the Museum of Inuit Art** plus 20% off all Inuit prints at the MIA Print Gallery. Simply present your valid ROM membership card. Program expires November 30, 2011. Contact MIA at 416.640.1571.

Acclaimed Inuit artist Abraham Anghik Ruben delivers *Memories: An Ancient Past*, the largest whalebone sculpture in Canada, to the Museum of Inuit Art in Toronto.

*NEW!*

## *Free Inside Walking Tour for Members*

**Instruments and Architecture: An Insiders Walk**

**October 30, 2011**

**Registration is required.**

Join the ROM for the first Insiders Walk, which explores architecture with a musical theme by touring interiors of the ROM, the Royal Conservatory of Music, and the Edward Johnson Building of the Faculty of Music, University of Toronto.

This Insiders Walk is offered the last Sunday of each month at 2 pm from October 2011 to April 2012 (except December, see below).

Dates: October 30, November 27, December 11, January 29, February 26, March 25, April 29.

This free tour is open to ROM Members only. To register: **rom.on.ca/whatson** or 416.586.8097.

## *Save the Date!*

**Sunday, December 4, 2011, 10 am to 3 pm**

An exclusive event for Museum Circle, Director's Circle, Royal Patrons' Circle, and Young Patrons' Circle Members.

Mark your calendars. You are invited to the ROM for some family holiday fun. Kids will enjoy fun crafts, activities, and festive treats. The invitation is for up to 4 adults and 4 children (one must be a cardholder). Not transferable. Registration is required: **rom.on.ca/whatson** or 416.586.5700.

**Upgrade** to one of the above membership levels to join us at this fun holiday event. Visit **rom.on.ca/members** or call 416.586.5700.

## *Friends*

FOUR PART SERIES: DECORATIVE TEXTILES

**Fall and Winter 2011/2012**

Free for Friends of Textiles & Costume

**Decorative Textiles Part One: Weaving & Dyeing**

**Friday, September 16, 2011**

Dr. Sarah Fee, ROM associate curator, Department of World Cultures, will discuss weaving and dyeing. Dr. Fee is an expert on the Akotifahana textiles of Madagascar and will refer to the ROM's textiles collection in her presentation.

**Decorative Textiles Part Two: Quilts and Quilting**

**Friday, October 21, 2011**

Quilting is a medium of personal expression and has a long history in our culture. Patricia Harris will reference the ROM's extensive quilt collection in her comparison of Canadian quilts to those from the USA and Britain.

Each program begins at 5 pm and will be followed by a tour of the gallery. Registration is required. Cost is $20 per person. Attendance is free for FTC Members only. Register online at **rom.on.ca/whatson** or call 416.586.5797.

The third and fourth programs in the series will be announced at a later time.

## *Last Chance*

CLOSING OCTOBER 2, 2011

**Don't miss the last chance** to see *Bollywood Cinema Showcards: Indian Film Art from the 1950s to the 1980s*

## *ROM Membership— the Perfect Holiday Gift!*

**Give the gift that gives all year long!** Your friends and loved ones will enjoy the Museum treasures long after the holiday is over, including free unlimited admission to the ROM and to two major exhibitions, *Maya: Secrets of Their Ancient World* and *The Great Southern Dinosaurs*.

ROM Members save up to $20 on gift memberships. For details or to purchase a gift: **rom.on.ca/members** or 416.586.5700.

**COMING SOON**

**The Great Southern Dinosaurs**

Summer 2012

**What are ROM Friends?**

Friends are a variety of affiliate groups available only to ROM Members. Each group offers extras beyond ROM membership. Cost: $57 per group per year. For details: **rom.on.ca/friends** or 416.586.5700.

**Don't Miss Out!**

By giving us your e-mail address not only will you receive notice of events and special offers exclusive to ROM Members, you'll also be helping us in our commitment to being environmentally responsible. Contact **membership@rom.on.ca** and let us know if you'd like to receive our exclusive eNewsletter.

Your privacy is important. We will not share your e-mail address with any other organization. You may cancel at any time.

**Stay in the Know at the Members Info Centre**

Drop by our desk in the front lobby for the latest on membership events, programs, and special offers.

**New Visitor Policy**

Prepare for your ROM visit by consulting the Museum's Visitor Policy at **rom.on.ca/visit/policies.php**.

## PROGRAMS

### *The William Thorsell Forum*

COLLAPSE: HOW SOCIETIES CHOOSE TO FAIL OR SUCCEED
*with Jared Diamond*
**Tuesday, November 1, 7 to 8:30 pm**
**$29 / ROM Members $26**

The ruined cities, temples, and statues of many of history's great, vanished societies (Easter Island, Anasazi, the Lowland Maya, Angkor Wat, Great Zimbabwe, and many more) are the birthplaces of endless romantic mysteries, but they have something more valuable to offer: while these social collapses were due in part to the same types of environmental problems that beset us today, many societies facing similar problems do not collapse. What makes certain societies especially vulnerable? And what can we learn to help us avoid the same fate?

Speaker: Jared Diamond, author of the Pulitzer Prize-winning *Guns, Germs and Steel* (1997) as well as *Collapse* (2005), is the epitome of the celebrity scientist. Diamond's popular lectures provide a deep, nuanced view of the development of human civilization. He has received some of the world's most prestigious awards, including a MacArthur Genius

Grant and the National Medal of Science, America's highest civilian award in science.

The lecture will be followed by questions from the audience and book signing of *Collapse* and *Guns, Germs and Steel*.

Register online at **rom.on.ca/whatson** or call 416.586.5797.

## NEWS, continued

### *Members' Shopping Weekend*

A SPECIAL 20% DISCOUNT FOR 3 DAYS ONLY

**December 2 to 4, 2011**

Start your holiday shopping early. For one weekend only, ROM Members receive 20% off all regularly priced merchandise in ROM Museum shops. Light refreshments will be available in the main Museum Store on Level 1.

ROM MuseumStore

## ROMTRAVEL

### *The Charm of the Dalmatian Coast*

ONCE THE PROVINCE OF THE MOST SERENE REPUBLIC OF VENICE, THIS BEAUTIFUL COAST RETAINS THE FLAVOURS OF ITS PAST

**Today, the Dalmatian Coast** lies in Croatia, but its architecture, cuisine, and ambience reflect earlier political alliances. For centuries the region was part of the powerful empire of Venice, and the treasures of modern-day Venice attest to the wealth and dominance once held by "La Serenissima," which ruled from the 7th century to 1797.

Beautiful Croatia has been a vacation destination since Roman times, and is filled with signs of that earlier era: the best-preserved Roman amphitheatre in Europe is in Pula on the Istrian Peninsula, the cathedral in Split was formerly Roman Emperor Diocletian's mausoleum, and in Zadar, in the midst of the remains of a Roman forum, is the circular church of St. Donat.

All along the coast, visitors encounter visual reminders that Venice once ruled here—in the Venetian-style buildings and the ubiquitous winged Lion of St. Mark, symbol of Venice. The whole Croatian coast is picturesque but among the prettiest towns are Rovinj, on the Istrian Peninsula, and Trogir, where the Old Town, with its castle, is a UNESCO World Heritage site.

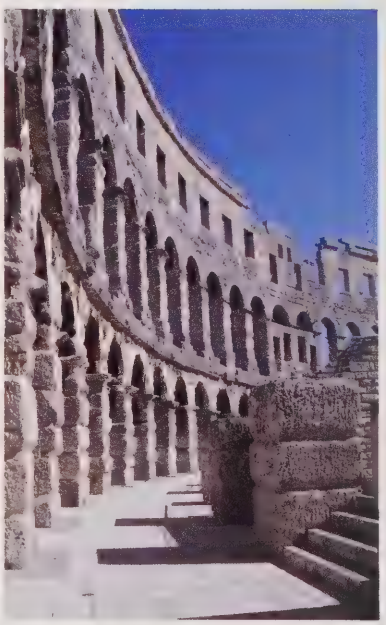
At the southern end of Dalmatia, the charming walled town of Dubrovnik is famously lovely. In many ways it looks very Venetian, though alone of the

major centres on the Dalmatian Coast, Dubrovnik maintained its independence from Venice, even after a period in the Middle Ages when it was forced to recognize Venetian sovereignty. Many of its sights, such as the Rector's Palace and the Fountain of Onofrio, date from the 15th century.

With Dalmatia's complex history it is no surprise that the region's cuisine retains influences from Italy, Austria, and Hungary. Fresh fish and seafood are always on the menu as are the delicious wines and olive oils produced in this picturesque land.

Join ROMtravel for a fascinating exploration of the history and culture of the Dalmatian Coast.

> **May 5–20, 2012**
**$7,215 (includes international flights)**
**For further information, contact ROMtravel at 416.586.8034, e-mail travel@rom.on.ca or visit the website rom.on.ca/programs/rom_travel.**



Onofrio's Fountain in Dubrovnik, courtesy of Yolande Baldachin; inside the Roman amphitheatre in Pula, courtesy of Wikipedia

**Upcoming trips**
**India** February 16–March 4, 2012
**Russia** May 4–16, 2012
**Turkey** September 30–October 15, 2012
**Santa Fe, New Mexico** October 2012
**South Africa** January 2013
**Egypt** February 2013

*Proud Supporter of the 2011 Brazilian Ball and the Royal Ontario Museum*

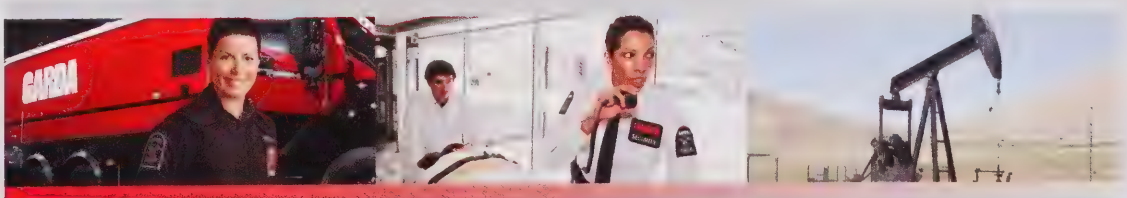
We celebrate the enduring success and colourful spirit and culture of the Brazilian Ball and the Royal Ontario Museum

Brookfield

GARDA

# Making your world secure

Garda is proud to support the Royal Ontario Museum




Cash Logistics

Security Solutions

GardaWorld Global Risk Consulting Group

gardaglobal.com

EVENTS

June 29, 2011

# Ancient Influence

## *An Evening of Tribute to ROM's New Galleries*

**On June 29, 2011,** the ROM and the ROM Governors welcomed the Hon. Lisa Raitt, federal Minister of Labour, along with several foreign dignitaries and more than 400 special guests to celebrate the opening of four new permanent galleries—the Eaton Gallery of Rome, including the Bratty Exhibit of Etruria; the Joey and Toby Tanenbaum Gallery of Rome and the Near East; the Joey and Toby Tanenbaum Gallery of Byzantium; and the Galleries of Africa: Nubia.

It was a wonderful evening that paid tribute to the many supporters of these galleries, particularly the Government of Canada, Joey and Toby Tanenbaum, Thor and the Hon. Nicole Eaton, Rudy and Catherine Bratty, and an anonymous donor.

In her opening words of welcome, Janet Carding, ROM director and CEO, spoke about the significance of the new galleries. "We are living in a world established by these ancient civilizations," she noted, "and we are surrounded by their influence."

Minister Raitt brought greetings and congratulations from the Government of Canada, which supported the project with a $2.75 million gift in January 2010 from the Federal Infrastructure Stimulus Fund, and thanked the ROM for being an educational place of wonder in the province of Ontario.

Dianne Lister, president and executive director of the ROM Governors, also commented on the strength of the ROM community: "We are truly grateful for the leadership of our Donors, Patrons, and Volunteers, who help the ROM take its place on the world stage."

The ROM and the ROM Governors thank the following Donors who have generously made these galleries possible: Bram Appel and Bluma Appel, O.C., the DeGasperis Family, Margo and Ernest Howard, Assuntino and Angelina Ricciuto, and Moira and Alfredo Romano.

To support the new galleries or to make a donation, please visit: **rom.on.ca/support/governors/donate.php**.

## UPCOMING EVENTS CALENDAR

### Culture Shock IV

**Wednesday, October 5, 2011**

Celebrate the Institute for Contemporary Culture's *David Hockney's Fresh Flowers: Drawings on iPhones and iPads* with a delectable dinner in c5 Restaurant Lounge and an exclusive preview of this dynamic exhibition of more than 400 digital artworks by contemporary artist David Hockney. Event proceeds support the ICC's programs and exhibitions. For more information or to purchase tickets, please call 416.586.5772.

### Fact? or Fiction?

**Tuesday, October 18, 2011**

Match wits with deceptive ROM curators at the ROM's trademarked guessing game, this year celebrating its 15th anniversary. A once-in-a-lifetime grand prize trip to Antarctica is on the line for players, but the real winners are the Museum's curatorial staff—event proceeds support critical curatorial research. Tickets are $250 each. For more information and to purchase tickets, visit **rom.on.ca/factorfiction**.

### RPC & YPC Preview of *Maya: Secrets of Their Ancient World*

**Wednesday, November 16, 2011**

Royal Patrons' Circle and Young Patrons' Circle Members will enjoy an exclusive preview of the new exhibition *Maya: Secrets of Their Ancient World* before it opens to the public. To learn more about RPC or to become a Royal Patron, please call 416.586.5556. For more information on YPC or to become a Young Patron, please call 416.586.8003.

Ryan Walker Photography

FROM THE

# rom governors

## THE HEART OF PHILANTHROPY

**Since arriving at the ROM on May 16, 2011,** I have been engaged in a whirlwind of meetings and stimulating conversations with Members, Patrons, and Donors. The ROM has many passionate supporters and each interaction helps me better understand the exceptional work of the Museum and the important role it plays in our community, our country, and indeed around the world.

I have also been learning about the Museum behind the scenes and that has made my first few months here very special. ROM curators, scientists, and technicians have encouraged me to visit the many laboratories, archives, and storage spaces tucked away at 100 Queen's Park to see their work first hand. Their passion is contagious. I find it extraordinary that one day I can be holding the skull of a Venezuelan vampire bat in my hand and the next touching a meteorite that is 4.5 billion years old and marvelling at the forces that created it.

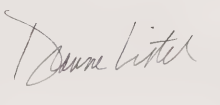
These "back-of-the-house" experiences are invaluable and also directly align to the work of the ROM Governors. This year, the Governors team will be raising $16.3 million, including $2 million for top priorities in our Earth Sciences Department—support that will allow us to acquire the world-renowned Kirwin Collection of Ores and Minerals. It will become an important educational tool for the next generation of geologists.

But geology is just one discipline studied at the Museum. ROM curators and scientists are engaged in projects in more than 30 countries all around the world. Their research findings inform global discussions that shape our lives and the future of our planet as we address a changing climate and other ecological challenges. This is why support for biodiversity projects in the Life in Crisis: Schad Gallery of Biodiversity and development of the upcoming Peter F. Bronfman Gallery of Early Life are also new philanthropic initiatives that you will be hearing more about in the future.

Since taking on leadership of the ROM Governors, I have also attended several significant events, most notably our Chairs' Reception on June 8, and the Gallery Opening/Patrons' Preview of the new Eaton Gallery of Rome, including the Bratty Exhibit of Etruria; the Joey and Toby Tanenbaum Gallery of Rome and the Near East; the Joey and Toby Tanenbaum Gallery of Byzantium; and the Galleries of Africa: Nubia on June 29. At the Patrons' Preview, we formally thanked the Government of Canada, Thor Eaton and the Hon. Nicole Eaton, Joey and Toby Tanenbaum, Rudolph and Catherine Bratty, and an anonymous donor for their support of these stunning new spaces. The ROM community is so fortunate to be surrounded by extraordinary philanthropists who are also exceptional community leaders.

In less than three years we will celebrate the 100th anniversary of the Royal Ontario Museum, which officially opened its doors in March 1914. This remarkable achievement is also a great opportunity to reach out to new communities, refresh our philanthropic strategies, renew donor relationships, and engage new supporters. The lens of the ROM's centenary year will be applied to all our philanthropic programs as we build on the excitement of the centenary celebrations.

Philanthropy—at its heart, community building and passionate investment—will enable the ROM to continue to be essential, relevant, compelling, and educational as we move into our next 100 years.



**DIANNE LISTER**
PRESIDENT AND
EXECUTIVE DIRECTOR,
ROM GOVERNORS
LL.B., CFRE

**Left:** Visitors admire an extremely rare limestone ciborium in the Joey and Toby Tanenbaum Gallery of Byzantium.

Dianne Lister, Michael Cullen. The Joey and Toby Tanenbaum Gallery of Byzantium, A.J. Messier Photography


**ROM BOARDS**

**PATRONS** His Excellency the Right Honourable David Johnston, C.C, C.M., C.D., Governor General of Canada, The Hon. David C. Onley, O.Ont, Lieutenant Governor of Ontario / **BOARD OF TRUSTEES** Sal Badali **(Chair)**, Mohammad Al Zaibak, Elyse Allan, Bonnie Brooks, Danuta Buczynski, Ronald Graham, Christopher Jamroz, Won J. Kim **(Vice-Chair)**, Elsie Lo, Barbara Milstein, Marilyn Pilkington, Colin Saldanha, Barbara Stymiest, Atul Tiwari, Carol Wilding / **EX-OFFICIO** Janet Carding, Dr. David Naylor, Jack Petch / **BOARD OF GOVERNORS** W. Robert Farquharson **(Chair)**, Linda Hasenfratz **(Vice-Chair)**, Shreyas Ajmera, Rudolph Bratty, Mary Anne Bueschkens, G. Raymond Chang, Jack Cockwell, Michael Detlefsen, Gwen Harvey, Jennifer Ivey Bannock, Vijay J. Kanwar, Michael Lee-Chin, Donald R. Lindsay, Dianne Lister, LL.B., CFRE, Rebecca MacDonald, James W. McCutcheon, Q.C., Robert E. Pierce, Elizabeth Schad, Simona Shnaider, (Joseph) Joey M. Tanenbaum, C.M., James Temerty, C.M., Rita Tsang, Harriet Walker, V. Prem Watsa, Richard S. Wernham, Alfred G. Wirth / **EX-OFFICIO** Janet Carding, Jack McOuat, Salvatore Badali / **HERITAGE GOVERNORS** Jack McOuat **(Chair)**, Robert D. Brown, Fredrik Eaton, O.C, O.Ont., Robert Gillespie, Kenneth W. Harrigan, Patricia Harris, Richard M. Ivey, C.C., Q.C, Hon. Henry N.R. Jackman, Thomas Kierans, Elsie Lo, Susanne Loewen, Stephens B. Lowden, Brenda McCutcheon, Frank Milligan, Dixie-Anne Montgomery, Frank Potter, Joan Randall **(past Co-Chair)**, Wendy Rebanks, Flavia Redelmeier, John A. Rhind, Donald M. Ross, Joan Thompson **(past Co-Chair)**, Lynton R. Wilson / **SENIOR STAFF** Janet Carding **(Director and Chief Executive Officer)**, Glenn Dobbin **(Deputy Director, Chief Operating Officer, and Secretary to the Board of Trustees)**, Mark Engstrom **(Deputy Director, Collections and Research)**, Dianne Lister **(President and Executive Director, Office of the ROM Governors)**.

**SUPPORT**

# *Royal Patrons' Circle*

## AT THE HEART OF THE ROM

**Royal Patrons' Circle (RPC) Members** have been making a difference at the ROM for 27 years, and in thanks for their donations to the Museum's critical unrestricted fund for the highest priorities, they enjoy exclusive events and benefits.

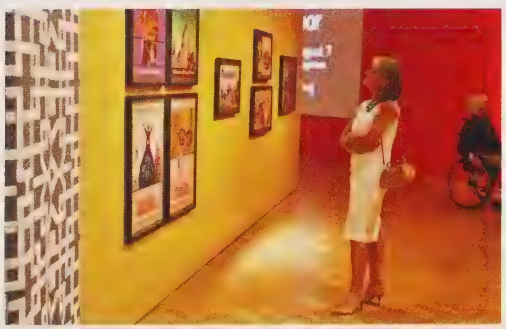
Throughout the year, the RPC program hosts a number of special event series: Behind-the-Scenes Tours, which give RPC Members entry into the ROM's vaults to see artifacts and specimens not on public display; Network Breakfasts, featuring a delicious breakfast at c5 and an address from a ROM expert on his or her latest news; and In From the Field, an annual event and cocktail reception at which three ROM experts speak about their cutting-edge research.

RPC Members also enjoy previews of new galleries and special exhibitions before they open to the public. In the coming months, RPC Members will preview *Maya: Secrets of Their Ancient World* (November 2011 to April 2012), and *The Great Southern Dinosaurs* (Summer 2012).

In addition, RPC Individual and Corporate Members enjoy exclusive benefits and are the only donor group at the ROM to have **transferable membership cards**. This means that every RPC Member can lend his or her card to friends, family, and colleagues to visit the Museum free of charge (and bring guests of their own with the card's guest privileges). This is all part of sharing the wonder of the ROM!

There has never been a better time to join RPC and its group of 1,000 passionate ROM ambassadors.

Visit **rom.on.ca/rpc** for more information.



# *Young Patrons' Circle*

## THE ADVENTUROUS SIDE OF THE ROM

**The Young Patrons' Circle (YPC)** has booked 12 months' worth of dynamic events—15 in all—to engage and inspire YPC Members with explorations of the ROM's world-class collections and expertise.

Highlights of the year include: Cabinets of Curiosities with behind-the-scenes access to ROM vaults; Gallery Explorations for an after-work expert-led tour of ROM galleries; Collection Adventures, to join a small group of Patrons off-site to visit private collections; the annual summer Garden Party with a mini version of the ROM's trademarked guessing game *Fact? or Fiction?*; and the annual Discovery Night, where Patrons and guests learn which fascinating curatorial project YPC is financially supporting this year.

As of 2010, in addition to supporting the Museum's greatest needs and hosting the annual PROM fundraiser for the ROM, a portion of every YPC gift now goes directly to the YPC Research Fund. This funding is awarded to a cutting-edge curatorial project each year. The first-ever recipient, Dr. Sarah Fee, was announced at the inaugural Discovery Night event and cocktail reception in April 2011. For details of Dr. Fee's fascinating project, *The Muscat Cloth of Oman: Arabian Silks for the East African Market*, visit the new YPC Research Fund website at **rom.on.ca/ypcresearchfund**.

It's going to be an exciting year for YPC at the ROM—don't miss the adventure!

Check out a full listing of events at **rom.on.ca/ypc**.

### Not Yet a Patron?

Contact our dedicated staff at:
**Young Patrons' Circle**
416.586.8003
ypc@rom.on.ca
**Royal Patrons' Circle**
416.586.5556
rpc@rom.on.ca

**Double your impact and your benefits through a matching gift to RPC or YPC!**
Some savvy RPC and YPC Members have asked their employers to match their charitable gift by filling out their company's corporate matching gift forms. Some companies offer this opportunity to spouses and retirees as well. In this way, Members double their impact on the ROM's unrestricted fund and the sustainability of the Museum for generations to come, and enjoy benefits at a higher giving level!

RPC, Ryan Walker Photography. YPC, Jaclyn Klein.

## *Cineplex Entertainment Teams Up with the ROM*

### TO PROMOTE *BOLLYWOOD CINEMA SHOWCARDS*

**Now on display at the ROM,** *Bollywood Cinema Showcards: Indian Film Art from the 1950s to the 1980s* features colourful vintage collages that advertised new movie releases. It's only fitting that Cineplex Entertainment, the largest motion picture exhibitor in Canada, has teamed up with the ROM as promotional partner of the exhibition. *Bollywood Cinema Showcards* opened in June to coincide with the International Indian Film Academy awards held in Toronto this year and the accompanying IIFA Film Festival, which was hosted at Cineplex theatres across the Greater Toronto Area. Cineplex owns, leases, or has a joint-venture interest in 130 theatres from British Columbia to Quebec, serving approximately 70 million guests each year. As well as a commitment to sustainable growth and good stewardship in the communities it serves, Cineplex believes in supporting communities directly.

CINEPLEX

## *OCAF Signs on as Government Partner of Maya: Secrets of Their Ancient World*

### THE NEW ROM BLOCKBUSTER

**The ancient Maya civilization holds much allure.** Not so very far away, in the lush jungles of central Mexico and south to northern El Salvador, are the remains of once-magnificent Maya temples and palaces. As earnest recorders of history, the Maya left inscriptions that tell us much about the civilization's complex calendar, engineering feats, and understanding of the cosmos—and about their beliefs and rituals for communicating with the gods that ruled their world. With the help of government partner Ontario Cultural Attractions Fund, the ROM is offering a rare glimpse into that world with the exhibition *Maya: Secrets of Their Ancient World*. The show displays more than 250 artifacts, many of them not previously seen in North America. *Maya* was the perfect candidate for OCAF's support—the Fund's mandate is to assist Ontario's cultural and heritage organizations in capitalizing on the potential of exciting and innovative exhibitions and events. Investing in good ideas, the Fund helps cultural and heritage organizations increase and diversify their revenue sources by attracting tourists and other visitors to new attractions and special events.

This exhibition is co-produced by the Royal Ontario Museum (ROM) and the Canadian Museum of Civilization (CMC) in collaboration with the National Institute of Anthropology and History (CONACULTA-INAH). This event has been financially assisted by the Ontario Cultural Attractions Fund, a program of the Government of Ontario through the Ministry of Tourism and Culture, administered by the Ontario Cultural Attractions Fund Corporation.

OCAF FMCO ONTARIO CULTURAL ATTRACTIONS FUND
LE FONDS POUR LES MANIFESTATIONS CULTURELLES DE L'ONTARIO

## *Moira and Alfredo Romano*

### EXHIBIT PATRON FOR *BOLLYWOOD CINEMA SHOWCARDS*

**Deeply rooted in the cultural traditions of South Asia,** Bollywood cinema has in the last several years become a subject of growing fascination among art, film, and pop-culture enthusiasts in the West. The ROM exhibition *Bollywood Cinema Showcards: Indian Film Art from the 1950s to the 1980s* offers a rare opportunity to view vintage art used to promote Hindi commercial films. More than ads, these original compositions, commissioned from local artists, combine paint and photography in a way that is unique to South Asian visual culture. With help from Moira and Alfredo Romano as exhibit patron, the ROM's Institute for Contemporary Culture is able to display more than 120 of these vintage works. Mr. Romano, a principal of Castlepoint Realty Partners, is pleased to be part of the timely show. In business for 21 years, Castlepoint develops projects that include the creation of communities and employment areas across the Greater Toronto Area and beyond. Moira Romano, president of ETV Ltd., is delighted to help bring these vintage pieces to ROM visitors. The Romanos also recently supported the ICC's world premiere retrospective of African artist El Anatsui.

*Exhibit Patron: Moira and Alfredo Romano*

Ceramic bowl depicting a heron, Early Classic period (AD 250–600), Yucatán Peninsula, Mexico; Museo Regional de Yucatán Palacio Cantón; photo by Jorge Vertiz. Showcards, courtesy The Hartwick Collection

# Watching Angels

## These piscatorial prizes of many a living-room were graced with good looks by intricate evolutionary processes in their homeland

BY HERNÁN LÓPEZ-FERNÁNDEZ

**Even for those who have never owned an aquarium,** freshwater angelfish such as this *Pterophyllum altum* are among the most readily recognizable aquarium fishes. Although we often think of this fish as a beautiful and ethereal pet, its elegant and unusual form and long fins are gracefully adapted to maneuvering among the submerged vegetation of the Orinoco and Amazonian flooded forests.

Often living in black waters—those stained a tea-colour by fallen forest leaves—angelfish probably appear to possible predators as a series of silvery specks, their black bars simply blending with the dark background. As predators themselves, angelfish combine maneuverability with stealth and jaws adapted to feeding on small insects and other prey. Hidden among the submerged leaves and roots, they aggressively care for their eggs and fry until the young are big enough to fend for themselves.

Ultimately, this familiar beauty is the exquisite result of a long and elaborate evolutionary process that gave origin to one of the largest families of freshwater fishes. Angelfish are but one of more than 600 species in the family of cichlids that inhabit the rivers of South and Central America. With an uncanny ability to adapt to their environments, cichlids have become specialists in using the many ecological opportunities available in the vast expanses of the American tropics. Whether in the sluggish lowland rivers of the Orinoco and Amazon basins, the rapids-ridden tributaries in the Brazilian and Guianan shields, or the blue waters of the Yucatán Peninsula, cichlids have found a niche almost everywhere.

But cichlids are not alone in their remarkable adaptations. They are just one family in a region with perhaps 7,000 fish species—the largest diversity of freshwater fishes anywhere on Earth. Here at the ROM's Department of Natural History, we are working hard at understanding how cichlids and other fishes in the Americas have been able to diversify in such an incredible way. More importantly, we are trying to learn how to protect these marvellous fishes from a world that increasingly challenges their survival even before we have been able to discover them all.

Watch for an in-depth look at the ROM's work on cichlids and other South American fishes in the Summer 2012 issue of *ROM* magazine. o

**HERNÁN LÓPEZ-FERNÁNDEZ** is associate curator of freshwater fishes in the ROM's Department of Natural History.

Getty Images, Dorling Kindersley; photo by Dave King

# *ROM*, the Magazine of the Royal Ontario Museum

**175**[†] **THOUSAND**
The number of *ROM* magazine readers.

**97**
The number of years the Royal Ontario Museum has been open to the public.

**4**
The number of issues of *ROM* magazine per year.

**41**
The number of countries in which *ROM* magazine is read.

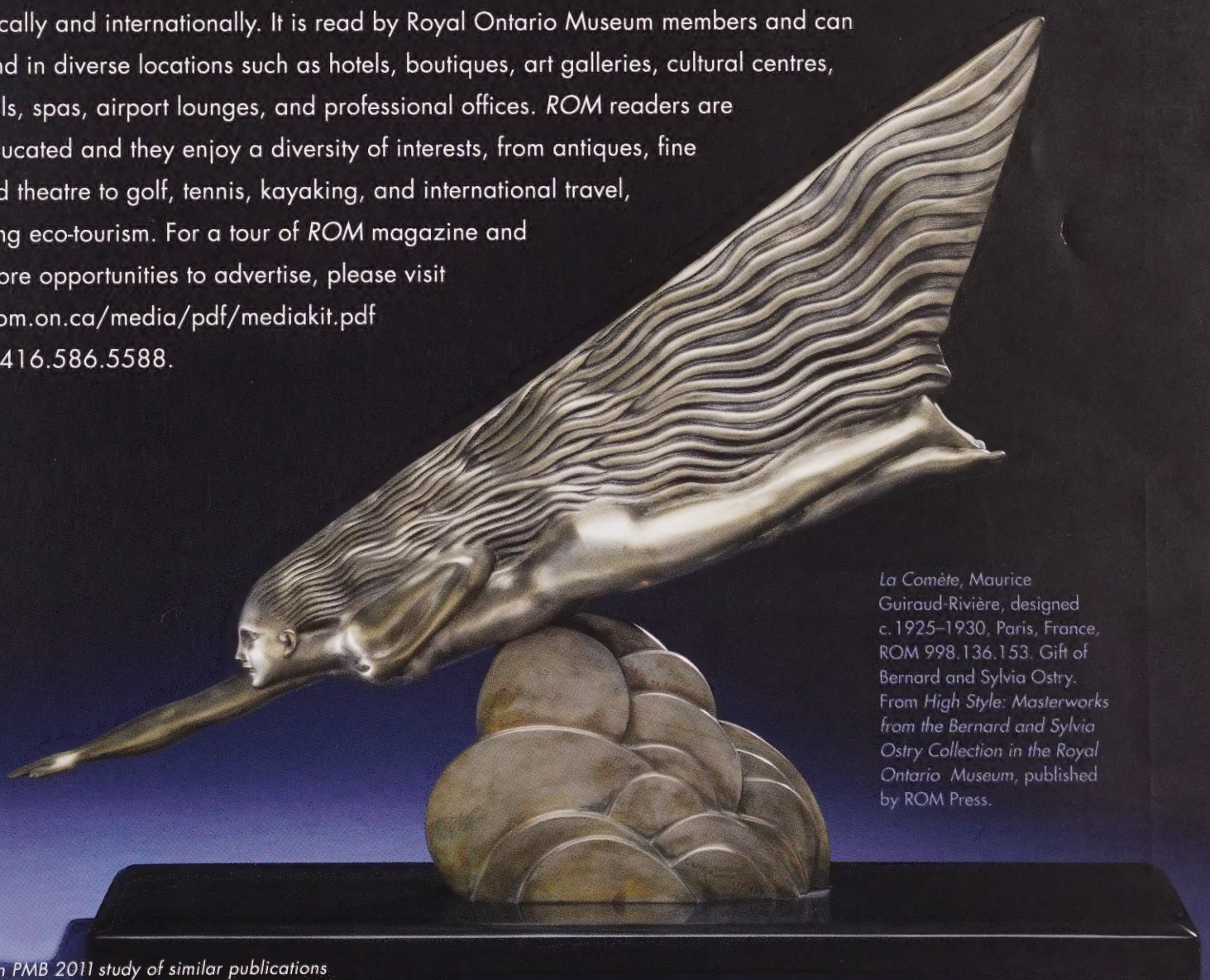
**1 MILLION**
The number of visitors the ROM receives each year.

**43**
The number of years the ROM's magazine has been published.

**112 THOUSAND**
The number of *ROM* magazine readers in Toronto.

**145 THOUSAND**
The number of *ROM* magazine readers in the GTA.

*ROM* magazine appeals to a wide market of adventurous and intellectually curious individuals both locally and internationally. It is read by Royal Ontario Museum members and can be found in diverse locations such as hotels, boutiques, art galleries, cultural centres, hospitals, spas, airport lounges, and professional offices. *ROM* readers are well educated and they enjoy a diversity of interests, from antiques, fine art, and theatre to golf, tennis, kayaking, and international travel, including eco-tourism. For a tour of *ROM* magazine and to explore opportunities to advertise, please visit www.rom.on.ca/media/pdf/mediakit.pdf or call 416.586.5588.



*La Comète*, Maurice Guiraud-Rivière, designed c.1925–1930, Paris, France, ROM 998.136.153. Gift of Bernard and Sylvia Ostry. From *High Style: Masterworks from the Bernard and Sylvia Ostry Collection in the Royal Ontario Museum*, published by ROM Press.

[†] *estimate based on PMB 2011 study of similar publications*

# Maus Park

## 18th & 19th Century Furniture

**24,000 Square Feet of Showroom Open Weekends or by Appointment**
**To Make an Appointment Call:** *Douglas Stocks* **(416) 454-7778**
289 Pineherts Road, Paris ON